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ADDRESS.

INTERNATIONAL CONGRESS OF PUBLIC HEALTH.

ADDRESS OF THE PRESIDENT,[1]

SAMUEL H. DURGIN, M.D.
BOSTON, MASS.
PRESIDENT OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

As co-workers in the field of sanitary science, and its practical application to the prevention of disease and death, we have again assembled from different parts of this and other countries to join hands, and to take counsel with each other.

We have met this time under most unusual circumstances, and with surroundings and conditions of world-wide interest.

The Columbian exposition marks an era in the world's history. Around us are gathered the evidences of advance in all lines of industry, of talent, and of thought. There has been a peace congress, a congress of religion, a congress of charities and correction and innumerable other gatherings for the purpose of comparing notes and showing the great advance in our civilization in all lines of thought and endeavor.

Among those who have died since the last meeting is Dr. Edward H. Janes, who for twenty-seven years occupied the position of Assistant Sanitary Superintendent of New York. He was also Secretary of the American Public Health Association for two years.

His contributions to the first three volumes of the Transactions, were characterized by care and painstaking, and of a decidedly practical character.

He was much interested in his chosen work and was a modest, upright, conscientious man.

Other workers have also passed away, and tributes to their memories will be paid by the Committee on Necrology.

AMERICAN PUBLIC HEALTH ASSOCIATION.

The great trust which this Association took upon itself twenty-one years ago has been worthily held, and the work to which it has addressed itself in the interest of humanity, has been diligently pursued. It is fitting, perhaps, at this time, when we may be said to have attained our majority in years, to take a retrospective glance of public sanitation, and to note the possible results of its application in the relief of human distress. The work of the sanitarian is manifold, and deals with the most vital of our personal and social interests. It deals with the air we breathe, the food we eat, the water we drink, the soil we live upon, and with the general welfare of mankind. It means the investigation of the rise, progress, and decline of epidemics, and a fostering growth of works and projects designed to prevent and remove the causes of disease.

[1] Read October 10, 1893.

AIMS OF SANITARY SCIENCE.

The sanitarian concerns himself but little with the cure of disease. The problem which he seeks to solve is how disease can be averted. The pathologist establishes the nature of morbid processes, and his investigations suggest to us the appropriate remedy. The aim of the sanitarian is to seek out and remove the cause or causes which produced these processes. It has been said that preventive medicine embraces everything which relates to the physical well being of our fellowmen, so that it has to deal with all physical evils and, incidentally, many of a moral character. Its object is the health, and therefore the happiness and prosperity of man.

It is sometimes objected that public hygiene can not lay claim to the possession of the qualities of an exact science, that its data are too partial, its generalizations too sweeping. Unfortunately some reason for this feeling exists on account of the enthusiasm of certain writers who exaggerate what is seen, guess at what is unseen, and shape their conclusions accordingly.

True sanitary science, however, is built up slowly by patient observation of facts. Sanitary science is not altogether of modern growth. It may be said to have experienced several revivals, but its real history is almost as ancient as history itself.

HYGIENE AMONG THE ANCIENTS.

The ancients fought against evil smells as vigorously as the moderns. A process of disinfection was adopted by Ulysses, and described by Homer. Hercules too, was a practical sanitarian, but of all the ancient sanitary reformers, Moses was the most thorough and practical. He gave us the principle of the modern earth closet, although the animals of the field may be said to have anticipated him in that device. During the best times of Greece and Rome, public sanitation was much studied, and the supervision of hygienic arrangements was an office of dignity among the Greeks and the Romans. The cleansing and disinfection of streets and sewers were placed under a high officer of state, because as Justinian tells us "uncleansed and unrepaired sewers threaten a pestilential atmosphere, and are dangerous."

Sanitary science owes something to the fathers of medicine also. Hippocrates was the first sanitarian who wrote an entire book on public health, and his discourses upon pure air, pure water and pure soil are instructive reading at the present day.

It is exceedingly interesting and suggestive to find these ancient writers elucidating principles which the exact investigations of our time have demonstrated to be the true foundation of sanitary science.

In Mexico it has been shown that sanitary science must have reached a high degree of perfection in its history. Previous to the conquest of the country by the Spaniards, the towns were thoroughly and efficiently supplied with water by the most perfect sys-

tem; but the teachings of these early times were not permanently effective. The magnificent civil works were doomed to suffer ruin, and the world passed through dark ages of mental and physical barbarism.

The devastating epidemics of the middle ages which cut off one-quarter of the population of Europe are well known. Filth, instead of being abhorred, was almost sanctified. The monks imitated the filthy habits of the hermits and saints of early Christian times, and the early fathers commended them. Even St. Jerome used to praise the filthy habits of hermits, and especially commended an Egyptian hermit who combed his hair on Easter Sunday only, and never washed his clothes at all. Monks up to the time of the reformation thought, or professed to think that, by antithesis, pollution of the body indicated cleanliness of the soul. Practically, indeed, it might be said to have helped to it, because the odor of sanctity which infected these monks and hermits helped them to keep apart from the temptations of the world; for the world scarcely cared to come into too close contact with these odoriferous saints.

MODERN SANITATION.

The science of public sanitation as practiced in our day is a growth of recent years; a reaction from the ignorance and negligence of previous generations in the matter of sanitary administration. This reaction may be said to have dated from 1838, when the English Poor Law Commissioners instituted an inquiry into the health of towns with a view to remove by public authority some of the evils incident to poverty for which the poor are not responsible, and which they can not themselves remedy. The active movers in this work were Dr. Southard Smith, Mr. Edwin Chadwick, Dr. Arnott and Dr. Farr, and it is to their labors and testimony that much of the present enthusiasm concerning sanitary investigation and administration is due. The work begun by these pioneers has been carried on with increasing zeal from that time forward. It has enlisted the active interest of a multitude of intelligent, earnest men, who have patiently and persistently devoted their energies to the investigation of the causes of disease, and a constantly increasing interest is being manifested among the people concerning all matters looking toward a more perfect conservation of the public health.

Employers have found that there is a financial aspect to the sanitary questions of the day, and that more work and better work can be obtained from men in health than from men diseased.

Legislation has been influenced by the researches into the causes of disease, and has followed the lead of the investigators.

The schools of Europe and America have one by one added to their requirements for a degree in medicine, a knowledge of sanitary science. It is becoming more and more apparent that the first and largest interest of the State lies in this great agency of human power, the health of the people.

What practical results have followed from all this? What has sanitary science done for man as an individual and for mankind collectively?

In the first place, it can be shown that man to-day has a greater expectation of life than any of his progenitors. He may more reasonably look forward to a long life, and to a life less exposed to devastating sickness. His vitality has been expanded, his strength increased and his days on earth prolonged.

From this brief review of the general subject of sanitary science let us turn to a more specific and practical consideration of some of its principles, and I will ask your attention for a few moments to the topic of *municipal sanitation*.

MUNICIPAL SANITATION.

The municipal health officer on entering upon his duties finds himself confronted with innumerable questions as to the sources of danger to the public health, of which he has been selected as guardian.

He first pictures to himself an ideal sanitary condition, for example: a clean, dry surface; a well-drained soil; good public and private sewerage, the immediate destruction or removal of all decomposable wastes, wholesome food and water supplies, with a sufficient equipment to preserve all of these favorable conditions, and then his work of construction and maintenance begins.

It would be impossible within the scope reasonably given to a single address to more than touch lightly upon the large number of topics, and the variety of each which falls under the care of the municipal health officer. I shall, therefore, delay you by a consideration of only a few of the more important subjects which affect the health of cities.

WATER SUPPLY AND DRAINAGE.

The difficulty of finding a pure and uncontaminated water supply in sufficient quantity to meet the ever increasing requirements of modern civilized life, has confronted every large city on the globe. With the increase of population it is not possible to find a watershed which is not more or less polluted by the wastes of human life. Our great lakes even at certain points upon their shores have become at times sources of disease. And some of the cities of the old world recognizing the difficulty of procuring waters which are not contaminated by sewage, have almost by force of necessity adopted a suspicious supply, and have trusted to methods of filtration for the removal of the disease producing elements. London and Berlin afford examples of the immunity from infectious diseases attending the use of waters so filtered. A variety of opinions is held among sanitary engineers as to the best method for sewage disposal. The opportunty for the ultimate disposal of sewage is not the same for all cities. One city has the opportunity to discharge its sewage into deep tide water under such conditions as to give rise to no evil results, while other cities are not so favorably situated. It would be a safe principle to follow, however, never to discharge sewage matter into any river, lake, or body of water which is likely to be used as a source of water supply.

DRAINAGE.

Although I am not prepared to say that through the scientific experimentation now going on in the filtration of sewage-polluted waters, the time may not come when the waters of any river or lake may be used as a source of water supply, and the sewage resulting therefrom then be returned to the streams in a state of comparative purity which will render them available for domestic uses. However much we may disagree as to the ultimate disposal of sewage, there seems to be a general consensus of opinion that the water carriage system must supersede all others in its cheapness and capacity for a apid and safe translation of our sewage from its

initial starting point to a proper and safe outfall, where it may be disposed of without offense and danger to the inhabitants of the city.

It is generally conceded that when this material is confined within its proper channels and constantly undergoes rapid removal it is harmless, and does not deserve the opprobrious epithet which it incurs under opposite conditions, namely, when stagnating without or even within its channels.

Under these favorable conditions, the problem of the ventilation of sewers becomes extremely simple by harmless open grate covers over the manholes in the streets. The public sewers thus supplied with the proper and continuous incline to secure the rapid and continuous flow, are ready to receive the private drainage from dwellings and factories and other sources.

The question of private or house drainage is more complex, and should be constructed only under regulations prepared by competent sanitary engineers, by plumbers who have shown their competency for such work to a proper board of examiners, and have been licensed therefore. The material for this work should be strong, tightly jointed, securely trapped and ventilated above the top of the house.

With a system of sewage thus supplied, the privy vault and cesspool, which have been most serious menaces to the health of cities, should cease to exist.

It is easy to see that with such suitable provisions for the complete and rapid removal of all sewage, the escape of noxious emanations from the sewers into the streets and dwellings would be impossible.

The conditions under which sewer gases are generated and penetrate into houses are from the stagnation of sewage, by its putrefaction when the consequent generation of poisonous vapors are favored, and the absence of sewer ventilation, by consequence of which these vapors are confined and pent up, until they acquire a sufficient degree of tension to force the barriers by which we vainly attempt to exclude them from our homes. By the rapid removal of sewage, on the other hand, its putrefaction in our midst is forestalled, the generation of noxious gases within our drains and sewers is reduced to a minimum or wholly prevented. The ventilation of sewers is rendered easy and harmless, and finally such air, gases and vapors as must be contained within the sewers, being no longer confined, find an easy escape into the open air.

In the city of Boston our private drainage, like that in most cities, is unsatisfactory, and the cause of an immense amount of inspection, complaint and annoyance, and undoubtedly the cause of much ill-health. We have statute laws and city ordinances which specify the method, material and workmanship necessary for the construction of house drainage. Plans for construction and repairs are submitted to, and the work approved by, the inspector of buildings.

The board of health is called upon to find defects and to order repairs, and such repairs each year number about 4,500.

For the purpose of ascertaining to what extent defective conditions of plumbing exist, and to what extent traps are supplied, and water closets substituted for privy vaults, we have taken a large number of blocks of dwellings, both new and old, each season for thirteen years, and made house-to-house inspection, with the following results:

Want of traps, first five years, averaged	50%
During thirteen years	32%
During the last year	22%
Defective conditions of plumbing first five years averaged	49%
Whole thirteen years	39%
During the last year	34%
Use of privy vaults, first five years	28%
For thirteen years	14%
During the last year	3%

This means not only a very poor state of plumbing, but a want of commendable progress in the substitution of a better condition. It indicates poor construction and inefficient repairs.

It is my opinion that the regulations, supervision of construction and repairs of plumbing should be in charge of one department. The old privy vaults and cesspools, with their accumulation of filth, which were once so common, are now rapidly disappearing from the city. Nearly seven thousand of these privy vaults have been demolished in as many years, and the few remaining where a public sewer abuts the premises are under orders to go. The yard cesspools, which are also common nuisances, are being changed from receptacles for sink and other house drainage to those for surface drainage only.

DISPOSAL OF WASTE.

The removal and disposal of refuse material has become a very serious question to the city as a corporation, and to the individual citizen. There are now in vogue several different methods for the disposal of the kitchen refuse, all of which are more or less objectionable. In one city it is carried away and dumped into the sea, in another it is collected and sold to the farmers to be fed to swine, and in another it is removed to a distance from the city and buried or consumed by fire.

In the city of Boston, where the principal part is sold to farmers, and the remainder carried out to sea, the cost of collection and transportation has reached the annual sum of one hundred and seventy thousand dollars, or considerably more than the entire appropriation for the health department, which includes the maintenance of harbor quarantine, free public baths and urinals, hospitals for contagious diseases, disinfection, public vaccination, the care of public burial grounds, the inspection of nuisances, and other incidental expenses. This large cost can not be diminished by any of the present methods in use, but must necessarily be increased by the growth of population, by hauling to a greater distance, or by the process of cremation, which is now in use in many of our cities.

It must be admitted that the storing of this material in our yards, and its subsequent transportation through our streets, creates a nuisance of a most disgusting character, and it seems to me it should not be looked upon by sanitarians as harmless, or as a satisfactory method of disposal, to say nothing of the enormous cost to the city.

It has for many years seemed to me, that the kitchen wastes should, by some special provision in the kitchen stove, be disposed of as soon as they are formed. By this means, all subsequent nuisance and expense would be avoided.

The other wastes of the city which are now dumped into the harbor, and into other bodies of water, or upon vacant lots for filling, which are largely composed of combustible material, should undergo cremation, and their ashes used for filling.

STREET ENGINEERING.

The construction and care of our public and private streets have a sanitary side to be considered, especially when we remember the considerable proportion of the area of our cities which they occupy, and the frequent unsanitary condition in which we find them. While the construction of streets is almost purely a matter for the engineer, the health officer has frequent cause to complain of their filthy condition. Most streets in all cities present a more or less unclean and offensive surface. This condition may be due to a faulty pavement, want of pavement, or a lack of care, which is supported by a popular notion that an unclean and muddy condition of the streets has no appreciable effect upon the public health. Macadamized streets where much used, are unclean and offensive most of the time.

It would be in the interest of the public health, a cleaner atmosphere, greater public convenience and economy, if all of the much used streets of our cities were paved with material which would present an even, durable and non-absorbent surface.

The private alleyways are not only disowned, but generally uncared for by the city. For the most part they are found to be unpaved, uncleaned, and a source of much complaint. Any attempt on the part of the health officer to cause these places to be cleansed by the abuttors is attended with great difficulty, delay and frequent disappointment. It would be far better to place these private ways in charge of the city, and tax the people for properly paving and keeping them clean.

MORTALITY STATISTICS.

Under the head of *mortality statistics*, the health officer finds a valuable guide to important sanitary work, although it is to be regretted that much of the data found under this head is untrustworthy. These mortality tables, properly prepared will show the extent of mortality, and to what extent it is excessive in any portion of the community, and its relationship to age and nationality. They will also show us the nature and causes of the diseases which occasion the excess of deaths and to what extent, and by what means, these diseases are preventable.

This work begins with the physician, and ends with the registrar of vital statistics. Many physicians perform the duty of certifying the cause of death with great care and exactness, while others perform the same service with very little knowledge of the disease of which the person died, and with corresponding ignorance of the use and value of correct mortality statistics.

Unfortunately in many States there is no legal discrimination between the duties and privileges of the educated and the totally ignorant practitioner of medicine. The registrar who receives these certificates should be a well educated physician, with considerable experience so as to be able to reject fraudulent and worthless certificates. Every one who has had experience in the registration of mortality reports, understands how difficult it is to secure correct data from irresponsible persons. The cause of these shortcomings is partly insufficiency of diagnosis, due either to the difficulties inherent in obscure cases, or to imperfect medical training, and partly to a lack of conscientiousness in the performance of registration whose objects and importance are not appreciated.

Obscure cases will occur in the practice of every physician, and due allowance must be made, and yet after reasonable allowances have been made, there still remains a degree of carelessness for which there is no excuse.

It is a common thing to find on death certificates instead of the morbid process which caused death, such indefinite information as "disease of bowels," "disease of brain," "disease of skin," "stomach disease," "ascites," "convulsions," "dropsy," "fever," "debility," "teething," "inflammation," "infantile," "heart failure," and other unlikely causes too numerous to mention, and which ought never to be used upon the records as causes of death.

In my own city, such certificates are rejected, and a competent physician sent to view the remains, and consult the family or friends of the deceased for information, with which to make a proper certificate.

It is to be noted, however, that information gathered in this way can not be regarded as wholly trustworthy, and often results in the statement of "*unknown cause of death.*"

It would be in the interest of correct mortality statistics if the registrar could be authorized, in case of insufficient information, to cause such postmortem examination by a competent physician as will enable him to record the true cause of death.

An examination of the mortality statistics will also betray the fact that we have an excess of deaths from contagious diseases and from diarrheal diseases among children, and while these facts open up a wide field of labor for the municipal sanitary officer, we shall have time to mention but a few of the most troublesome of these diseases.

INFECTIOUS DISEASES.

Smallpox, through the great discovery of Jenner, the ease of making an early diagnosis and its perfect and easy control by isolation and disinfection, is now one of the easiest and rarest comparatively of the contagious diseases with which we may deal.

Now and then our legislatures are obliged to listen to the petitions of a few anti-vaccinationists for the repeal of compulsory vaccination laws. I have too much faith, however, in the intelligence and sound judgment of our people to believe that these wholesome and necessary provisions will ever be effaced from our statute books.

We should not, however, in the absence of smallpox in our country, allow ourselves to grow indifferent to the necessity of keeping the susceptibility of our people to smallpox exhausted by means of early and successful vaccination of infants, and the subsequent and most important revaccination of adults.

The mention of cholera, like that of smallpox, strikes terror to the people of this country, and while the deaths from these diseases are infinitely small, the fear of them has served the municipal health officer in securing almost unlimited facilities for their prevention and control, which means may be largely converted to the care of other more common and destructive contagious diseases.

We have in diphtheria and scarlet fever, diseases which are not only endemic in most of our cities and large towns, and of most difficult control, but diseases for which there is as yet no known prophylactic. It is easy to say, and it is equally true, that perfect isolation and disinfection in all cases would soon annihilate the two diseases, but here is where the

great difficulty begins. We do not know where the infection is, in a very large percentage of cases, and therefore can not make anything like a complete application of our disinfecting agents.

The diagnosis of diphtheria and of scarlet fever is not always possible in their early but contagious conditions, even by our best physicians, but with the multitude of ignorant and indifferent so-called practitioners of medicine, who are called to attend such cases, and the many instances of mild attacks which do not attract attention, to say nothing of the semi-popular prejudice against the hospitals, we have the causes of the lack of information to the sanitary officer, the possession of which might lead to the control of the diseases.

These diseases are spread largely by children while in the early stages of the illness, or having mild and unsuspected attacks, and by those who are prematurely released from isolation through ignorance and fraud, and allowed in the streets and in our schools.

It would be out of place, as well as presumptuous on my part, to delay you at this time with the details of necessary public interference which would secure a mitigation of the prevalence of these two diseases. I will say, however, that I believe in early and continued hospital isolation, and that all cases should be supervised, and released from isolation only by medical officers appointed upon merit by the health authorities; the same medical officers to be inspectors of schools, in which there is much valuable work to be done in detecting the early symptoms of contagious diseases, pointing out the many unobserved and growing defects in development and disabled senses of the children, reporting to the board of health the overcrowded and unsanitary condition of the school room, inspiring an interest and pride on the part of all teachers to develop an aptitude in detecting early symptoms of disease, defective senses and deformities in children, and in developing a more popular interest in the needed reforms in school hygiene.

At a very small cost, we might bring to bear the powerful influence and unoccupied energies of a large corps of talented young physicians, aided by over thirty-five thousand teachers, for the public and individual welfare of nearly thirteen million children in the public schools of the United States.

Consumption, the most destructive malady to the human race in our country, has received the necessary attention of the bacteriologist. He has demonstrated to us satisfactorily, the cause of the disease, the methods of its transmission, and the means for its prevention.

I am sorry to say that as practical workers in public sanitation, we have sadly neglected to apply the means which we believe would prove effectual in largely abating the prevalence of tuberculosis.

The isolation of all persons suffering from consumption, would be impracticable and perhaps unnecessary, but the use of small sputa cups containing a disinfectant, at home, and bits of absorbent napkin used and securely concealed in traveling, to be burned or otherwise disinfected on returning, should at least be urged by public health officers, and popularized as much as possble.

In this way we should try to counteract the indiscriminate and disgusting habit of careless spitting in all public and private places, where the sputa are soon dried, and in the form of dust, start on the mission of deadly infection.

It is interesting in this connection, to note the fact that from experiments conducted with the tubercle bacilli, the sputa from consumptive patients have been found to retain their infective power for several years, also the fact that at a recent international congress on tuberculosis, one of the questions discussed was the necessity of obligatory cremation of the remains of consumptives.

Earth worms, it was urged, bring to the surface bacilli which infest the dead body, and in dry weather they may be inhaled in the form of dust. This, it is suggested, is the reason why the health resorts of the south of Europe are centers of tubercular contagion.

Drs. Lortet and Depugnes of Lyons, related cases of such infection, and described experiments which they made which led them to demand obligatory cremation. They mixed the sputa of consumptives in earth which they placed in pots. A month later the earth worms in them were tubercular, and the earth they passed through communicated the disease to animals.

Other experiments were made by placing earth worms on the graves of those who had died of consumption, and it is said the results were confirmatory of the possibility of contagion being conveyed in this manner.

CREMATION.

It should not be necessary to urge the sanitary claims of cremation for dead bodies before an assemblage of intelligent sanitarians. There are in this country already thirty-two cremation societies, fifteen crematories, and in the last five years there have been over two thousand incinerations.

Typhoid fever, like cholera, has been studied most persistently and profitably in connection with our water and food supplies, and we shall have the pleasure of listening to a discussion of the causation of typhoid by infected milk at this congress.

HABITATIONS FOR THE POOR.

Tenement and lodging houses are subjects for the constant watchfulness of the health officer, and they are too frequently found in an overcrowded and filthy condition. They are principally occupied by the poorest classes of people, including the newly arrived emigrant, whose habits of cleanliness are of the lowest order.

It becomes necessary to limit the number of occupants in such buildings on a rule of a prescribed number of cubic feet of space to each individual, by placards posted in each room, compelling frequent scrubbing and disinfection of floors and walls, burning much of the old bedding, frequently disinfecting the remainder by steam, watching them by night and prosecuting every violation of your prescribed rules.

CONCLUSION.

Turning in conclusion from the more onerous everyday duties of the municipal health officer to topics of greater popular interest, we find an increasing growth of public sentiment in all parts of the country favoring the municipal provision of large public parks, free public baths, small open spaces and open air gymnasiums for the enjoyment and sanitary welfare of the masses of people whose whole time is spent in the toil of our large towns and cities. Much of interest and encouragement might be said as to the immense patronage and benefit of these magnificent privileges if time would allow, but

I pass over these and other important topics which, I doubt not, will receive that careful attention and discussion their importance demands during the congress which is now open.

ORIGINAL ARTICLES.

THE TREATMENT OF GRANULAR LIDS.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. B. BLUBAUGH, M.D.

PARKERSBURG, W. VA.

Gentlemen:—As an introduction to my article, the treatment of granular lids, I will say that I live in a portion of the Ohio valley where the soil is very sandy for miles from the river on both the West Virginia and Ohio sides. To this fact I attribute, to some extent, the unusual prevalence of the disease in that locality. During the past two years I have been so unfortunate as to have had 205 cases of more or less severity to treat. Of this number 125 were treated with good results by the method I give you to-day, and the rest by all the usual plans of treatment recommended without, in some cases, the success I had hoped for. I find that Druitt, in 1848, suggested scarifying the granulations; then, after a few days, he used lunar caustic on the granulations and applied citrin ointment to the palpebral edges. In 1836, Mackintosh applied blisters behind the ears and dropped wine of opium in the eyes. Gross used Goulard's extract for awhile, but soon quit it, as he found that it encrusted the cornea and produced mechanical obstruction; he then advised shaving off the granulations and applied sulphate of copper or a solution of nitrate of silver, twenty to sixty grains to the ounce of water. Fenner used a strong decoction of phytolacca, and considered the treatment especially good where there was a rheumatic diathesis or severe pain around the eye. Dixon dusted the enlarged and inflamed follicles and papillæ with sugar of lead, but relies chiefly on hygiene and tonics to improve the general health; he says of all local treatment, the application of the undiluted liquor potassæ to the palpebral granulations, as suggested by Dr. Bader, has been most successful. It seems to act by saponifying and dissolving away the hypertrophied tissue. Carter uses the *lapis divinus* daily or on alternate days according to the severity, and alternating occasionally with tannin or acetate of lead. For isolated extreme hypertrophy the actual cautery has been used with success.

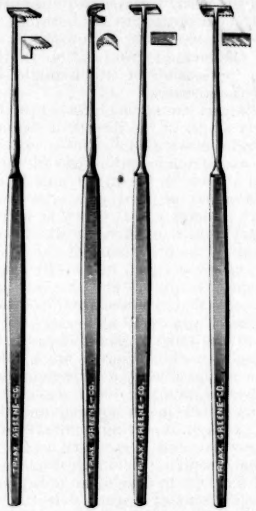
The ordinary, general treatment of the disease is nitrate of silver and sulphate of copper. Arlt and Stromeyer called attention especially to the fact that these remedies were not intended to chemically destroy the granulations, but were to be used to maintain a certain degree of hyperemia in order to cause their absorption. I think this important fact has, to a certain extent, been lost sight of, and they have been used to chemically destroy the hypertrophied papillæ. I have seen so many ugly, thick lids, with the whole mucous surface a cicatrix, presenting the condition known as xerophthalmia, and certainly due in a number of cases to the use of these drugs, that I have laid them aside entirely.

In my own treatment the four little instruments I have here, play an important part, as with them the chronic granulations are removed.

No. 1 has a smooth edge and is used to scrape off slight granulations where there is no general hypertrophy.

No. 2 is the same general shape but has a file-like edge and is used in more severe cases.

In everting the lids we frequently find the granulations thickest and hardest to remove just where the lid curves at the edge of the cartilage; here I use the curved instrument No. 3.



Above this, still, and near the retrotarsal fold, granulations are frequently found which neither of the instruments mentioned will reach; for these I use No. 4, which has a long rake set at right angles to a shorter one, and will reach the high granulations without trouble; while the long rake is removing the upper granulations the shorter one will remove those situated on the curve. Where the whole surface of the lid is hypertrophied presenting a gelatinous, granular mass, I have had, occasionally, to use the scissors. After removing the granulations as thoroughly as possible, I give my patient a simple astringent wash, regulating its strength by the severity of the case; a lump of alum which I direct to be rubbed on the everted lid as the case may demand and let him go home. In some very kind cases I have had to see the patient but once; in a number of them two to eight visits have been necessary. In all my cases I look to the general health of the patient and, unless some special diathesis is present, I have found the best tonic to be a mixture of phytolacca and rumex crispis, especially where the cornea is involved. In the majority of trachoma cases, pannus is present to a greater or less extent. For such a condition where the cornea persists in remaining opaque, inoculation with pus from an active case of ophthalmia has been tried and with some success, as has also the jequirity bean, *abrus precatorius*, a Brazilian plant. Grüening

scrapes the cornea with a small knife, removing the opacity. Where these all fail the cornea remaining opaque and vascular, peritomy or syndectomy has been done by a number of operators. In my own practice I have used jequirity bean twice; in one case the result was all that could be desired. In the other I had to work so hard to save the eye that I have not since entertained a kindly feeling for our Brazilian acquaintance. In my other cases of pannus, from slight to total, I have had my patient spray the eye with a solution of tannin and boracic acid in glycerin and camphor water daily, and in addition wash the eye twice daily with a bichlorid solution. A large number of cases of pannus vasculosa disappear when the granulations are removed without any special treatment. The results have been peculiarly satisfactory in all the cases and the point I wish to make, in closing, is the fact that I have used neither nitrate of silver nor sulphate of copper in any case. Of course I scrape off the granulations only in chronic trachomatous cases.

407½ Market Street.

Dr. J. L. Thompson—I would like to know if when a case comes to us in the first stages we should commence hoeing and scraping at once? In other words, should it be done in the acute stage of the disease, or only after it has become chronic?

Dr Scott—I can see no advantage in this treatment over that of expression. It is simply carrying out the same thing, and I am sorry to say that this plan of treatment has not been satisfactory with me. I have used it fully a dozen times, but with very little satisfaction, and in each case had to resort to the jequirity to obtain the desired result.

Dr. LeMond—I think I have treated within the last year near one hundred cases of chronic granular conjunctivitis, a number of which have been treated with Noyes' method of operating. I press the follicles, squeezing the morbid contents of the parts, doing it gently but firmly. I always avoid, as near as possible, not to tear or lacerate the conjunctiva. The sooner you get rid of the spurious material the better it will be for your patient. I usually follow this operation with a mild solution of bichlorid of mercury, using it as a bath for the eye about every three hours. I also direct my patient to use hot water, as hot as can be borne, from nine to ten times a day five minutes at a time; I find it very much better than cold water in these cases. Where I have not followed with the bichlorid treatment I prescribe a saturated solution of boric acid which I think also acts nicely. Among these cases I have had the very best results from this course of treatment. I think in all cases that have assumed a frog pawn condition we should have no hesitancy in resorting to Prof. Noyes' compression; in fact, I think it is the rational thing to do. I am aware that some oppose this method of treatment, but so far as I have found, among those who oppose it are men who have done the operation possibly once and in some instances not a single time.

Dr. Murrell—In my practice I have had many cases of granular lids. I think we have more cases of this trouble and in a worse form in the South and West than in the East. The oculists being few and hard to reach they go on without treatment until the disease gets in its worst form. They come to us with lids shortened and suffering with blepharospasm and we find it necessary to relieve the pressure by performing a canthotomy; I have never performed it on any case where I have regretted it and have had as many as two hundred cases of granular lids myself during the year. The treatment used is such as is suited to the particular case. In suitable cases I use Knapp's expression forceps principally, sometimes Noyes', but the grattage I do not like. Not every case is suited to the forceps treatment. I have cured many cases by one single treatment with the forceps, followed by the use of the boracic acid solution four times daily. I then direct the patient to use hot water as hot as can be borne three times a day letting it remain for half an hour at a time. There are various other remedies we resort to but to be successful with any of them we have to first relieve the pressure on the eyeball by performing a canthotomy.

Dr. Dunlavy—It is my misfortune to meet a great number of granular lids. It appears to me that there can be no law laid down as to how to treat a considerable number of them. There is a certain class that can be treated successfully by the conservative method, while there is another class in which nothing short of surgical interference will be of any effect. I use Knapp's forceps, Noyes' forceps or any forceps that I have in my case, my thumb nail or any other means by which I can destroy the granular tissue. I am not one of the number who believe the subsequent reaction is beneficial, but we can not expect to do any surgical work without this reaction. The method of surgical interference, that of making a canthotomy, as referred to by Dr. Murrell is often one of the best steps where there is pressure from the lid, and we can not do it any too early. If the granulations are at all chronic we might begin with our surgical means at once. A class of cases kept well under antiseptic treatment will give very little trouble. With regard to patients getting well with one application we have all seen them get well with scarcely any treatment at all.

Dr. Prince—We all have our views as to the surgical treatment, but if a case comes to us and we have it in the acute stage it seems we ought to do something for it before it finally gets to the chronic stage. About two years ago my attention was called to a paper published in the *Ophthalmic Record* by Dr. Hodges in which he recommended the following remedy for granulated lids: There are two solutions used; nitrate of silver 1 dram, water 1 dram and glycerin 2 drams, marked No. 1. Iodid of potash 1 dram, water 1 dram and glycerin 2 drams, marked No. 2. Take 3 drops of No. 1 and 6 drops of No. 2; mix well and apply to the everted lid. I am not sure whether there is anything in the iodid of silver or not, but I am sure from two years experience that in acute trachoma by the use of this remedy twice a day a cure is effected in a considerable portion of the cases within six weeks.

Dr. Savage—I will say that the Hodges' mixture has been a wonderfully good treatment in my hands. I hardly know how I could have gotten on without it. We not only have the iodid of silver and the iodid of potassium in the solution, but we have a third ingredient, the nitrate of potassium, as a result of the reaction. Thinking that the virtue of the mixture might be due to the germicidal effect of the nitrate of potassium, for three months I have been prescribing this alone with a view of deciding this point. My experience in the use of the nitrate of potassium alone for this period of time strengthens my belief that Hodges' mixture has for its effective ingredient the nitrate of potassium. I use it in the strength of grs. xx to xxx to distilled water 1 ounce

Dr. Muncaster—I have seen a number of cases treated with expression and the conclusion I have come to is that Knapp's roller forceps have been better than anything I have ever seen. After the operation I give the patient a solution of boracic acid and direct that it be used every few hours during the day, and also direct him to use hot applications several times daily, and have usually gotten good results.

Dr. Dudley S. Reynolds—I fear the gentlemen have con-

founded widely different conditions, and have entirely overlooked the question of the stage of advancement at which the treatment begins. I use no scarification, no scraping and no cauterizations. In the trachomatous and lymphoid forms, expression by Knapp's forceps undoubtedly proves successful in many cases. The hypertrophoid papillæ of the lining of the lid and retrotarsal folds are not to be treated this way without great aggravation of the disease. In the first stages of papillary blepharitis I prefer the solution of bichlorid of mercury and chlorid of ammonium, suggested by McKenzie as a cleansing wash in purulent conjunctivitis. As the purulent conjunctivitis always precedes hypertrophy this may be recognized as an entirely rational plan of treatment, varying the proportions of the bichlorid and ammonium chlorid. I often apply the crystal of muriate of ammonium directly to the everted lid, pressing it gently but firmly for a few seconds at a time. This may be done without pain by a previous application of a solution of cocain. In some chronic cases an ointment of the yellow oxid of mercury acts well. I know of no uniformly successful plan. I, nearly always, as Dr. Murrell has suggested, practice some modification of canthotomy in the very bad cases whether acute or chronic.

DR. BLUBAUGH—I think I have been a little misunderstood in regard to the use of these instruments. I do not use them in every case of granular lids, but I have not used nitrate of silver or sulphate of copper in any case. In answer to Dr. Thompson I will say that I do not do the hoeing and scraping in recent cases. I have in a number of cases used some mild astringent wash and if these granules remain I rub the lid with a lump of alum. There are a number of cases in which this is successful; but in other cases where the granulations remain I pick up my little hoe and go at it. Dr. Baker said the cases were a little more numerous in our part of the country than in Cleveland. We have in our country that light, sandy soil and I think that starts cases which develop later on into granular lids or trachoma from lack of any treatment or attention. A large number of these cases were from a portion of the State far from a railroad and where physicians were not numerous. Quite a number had been affected for years and had had absolutely no treatment. I would like to ask Dr. LeMond and also Dr. Reynolds if they have any cicatricial tissue after pressing out the granules with Knapp's forceps?

PHLYCTENULAR OPHTHALMIA.

Read in the Section on Ophthalmology at the Forty-Fourth Annual Meeting of the American Medical Association.

BY DUDLEY S. REYNOLDS, A.M., M.D.

PROFESSOR OF OPHTHALMOLOGY, OTOLOGY AND MEDICAL JURISPRUDENCE IN THE HOSPITAL COLLEGE OF MEDICINE, MEDICAL DEPARTMENT OF THE CENTRAL UNIVERSITY OF KENTUCKY.

Phlyctenular ophthalmia has been so variously described by writers and teachers it would seem but fair to assume that each may have been faithful in describing that form most frequently observed in his practice. Believing no form of phlyctenular ophthalmia should be regarded as a merely local form of disease, calling for local treatment alone, I am led to introduce the subject in its clinical aspects. It is certain the herpetic disease described by Stellwag is just as much a local manifestation of constitutional dyscrasia as are the serpiginous ulcers, or the more common conoidal masses of lymphoid cells described by the old writers as scrofulous and syphilitic ophthalmia. It is very important to distinguish between the phlyctenular diseases of miasmatic and malarious localities, and those observed in strumous, rachitic and syphilitic subjects. According to some writers it would be difficult to determine the syphilitic from the non-syphilitic cases; but syphilitic keratitis rarely ulcerates, yet it is nearly always attended by photophobia, by anemia and other manifestations of disturbed nutrition. In all forms of circumscribed inflammation it may be fairly assumed the processes of zymosis are going on, fermentation being, in fact, an essential feature of all localized inflammations.

Change of residence, change of diet, in fact, any change in the modes of living result sometimes beneficially. Phlyctenular disease of the cornea, like that of the limbus conjunctivalis, fluctuates according to the state of the patient's general health and nutrition; consequently a great deal has been claimed for local treatment in such cases. In some circumscribed abrasions of the corneal epithelium a small gray speck is seen, called phlyctenular keratitis, often cured by a single drop of atropin solution, just as it would have been by a drop of boric acid solution or anything which would tend to diminish the morbid sensibility in the abraded spot. The more common types of this disease are observed in the early stages as conoidal elevations, surrounded by dilated blood vessels. The oldest cells in the cone break down first, leaving a vesicular appearance at the apex of the cone; presently the walls of the vesicle rupture and the ulcerated stage is present; meantime the eye is morbidly sensitive to light and the patient, if the disease be in the cornea, is harassed with pain and disturbances of the digestive organs with more or less loss of appetite. An aperient containing calomel followed by quinin often cures the patient in three or four days' time I have frequently observed this course in cases which had been subjected for weeks to local treatment of calomel, mydriatics, myotics and ointment of yellow oxid of mercury, so much in vogue with some of our brother specialists.

Foreign bodies in the cornea often drop out and are washed away with the tears, leaving an epithelial abrasion which in persons of previous good health will disappear without treatment. If infection of this wound should occur the indications of this state are so marked as to mislead no ordinarily careful clinical observer. The treatment in such cases should, of course, be local and at the same time vigorous. If, however, this is observed in children with fever, or even in an adult, constitutional disturbances call for constitutional treatment independently of the disease in the eye.

It is not always easy to discover the cause of phlyctenular ophthalmia, just as it is often difficult to determine the syphilitic from the non-syphilitic subjects among the poorly nourished children which are observed at the public clinics everywhere. It is never safe to rely upon what is known as the history of the case as related by the family, and if I were not addressing myself to a body of gentlemen many of whom have at times engaged in the general practice of medicine, I should say the statements of the family physician are just as misleading and unreliable.

If your patient is the subject of inherited syphilis and has phlyctenular ophthalmia you should not be able to discover the fact by the condition of the eye alone. I have often observed phlyctenular keratitis as a complication of preëxisting interstitial keratitis.

Thus the conditions stated in the description of inherited syphilis in Mr. Hutchinson's famous prize essay, can not apply to a very large number of cases, and especially in children whose permanent incisor teeth have not yet appeared.

That state of overloaded lymph channels, with enlarged lymphatic glands, at one time supposed to be indicative of tuberculosis or inherited syphilis, and for a long time denominated scrofulosis, is now known to be brought on by excessive indulgence in the glucose types of food; even starvation itself is attended by an abnormal increase in the lymph stream, and enlarged lymphatic glands.

The late Dr. Henry F. Formad, of the University of Pennsylvania, demonstrated certain structural peculiarities in the lymphatic system of subjects of inherited syphilis, the children of tuberculous parents, and in those with acquired struma. His researches show conclusively that some of the forms of mal-nutrition in infants result from faulty development in fetal life.

Inherited syphilis, localized zymosis, mechanical obstructions in the capillary lymph tubes of the conjunctiva may each set up local changes which pass through all the varying stages of cell proliferation, disintegration, ulceration, and partake of those characters called phlyctenular disease, because of their circumscribed nature.

Dr. J. L. Thompson, of Indianapolis—The causes and conditions which bring about phlyctenular inflammations vary very much. I meet with it far more frequently during the hot summer months than in the winter. Living in an inland city where we have many sultry days and sleepless nights, cases of phlyctenular ophthalmia are the bane of childhood, especially where the strumous diathesis prevails. I place no reliance in any one remedy unless it be change of climate. When my patients have the means to do so, I urge upon them a change to the lakes, the mountains or to the coast. No sooner is this change made than improvement takes place. Where my patients are poor I urge upon them to keep as cool as possible, cleanliness, avoiding indigestible food, candies and all such trash. Yellow oxid of mercury ointment in cases where the cornea is not ulcerated, and treatment to the alimentary canal when indicated. Very often does this diseased condition hang on with one relapse after another until autumn weather sets in, nor does it stop here but repeats itself the following summer.

Dr. F. C. Hotz—I do not agree with Dr. Reynolds that phlyctenular ophthalmia is of syphilitic origin in the sense in which we regard interstitial keratitis as a local manifestation of inherited syphilis. Phlyctenular ophthalmia is undoubtedly influenced by any kind of malnutrition, and the treatment of these patients is unquestionably assisted by correcting any disorder of the digestive organs or any other condition which may affect the nutrition. But local treatment is by far the most essential measure for subduing the present inflammation.

Dr. Connor—The best treatment of many cases of phlyctenular disease of the conjunctiva or cornea is a residence in a well conducted children's hospital. Results are here obtained in a few days that require weeks or months of very many of these cases. Proper food, sleep, pure air and regularity in treatment are very real factors in these results. Of course, local and general medication are helpful, but the most efficient remedy is a dose of a good children's hospital. I have found this same remedial agent a most satisfactory element in the management of many of the allied affections of the eye in children.

Dr. Zeigler—My experience coincides with that of Dr. de Schweinitz. The immediate origin of phlyctenular attacks is almost always nasal, and not constitutional, as stated by most authors. Examination usually reveals associated lesions of the nostril and eye of the same side. If you treat the nose the eye will frequently recover without treatment. A simple treatment is by the nasal spray, and intranasal applications of tr. benzoin. comp. two or three times a week, (applied with cotton on a wire applicator.) You may use a simple wash for the eye. An ointment of hydrarg. ox. flav. may prove useful.

Gastro-intestinal disturbances may originate or exaggerate the attack, by causing reflex irritation of the nose.

I agree with Dr. Thompson when he recommends regularity of diet, and especially in children who are continually eating cakes and candies which perhaps do more harm than any other variety of food. But a worse error in diet is the coffee and tea furnished by parents to their children, which soon saps their vitality. The worst examples of this unhygienic regimen are seen in hospital practice, and my formula has invariably been "no tea, no coffee, no cakes and no candy." These alone may bring recovery. Of course the bowels should be kept regular. Salt water baths are excellent for toning up the relaxed surface of the body.

Dr. LeMond—It seems very singular indeed that a body of men, banded together in the same work and being composed of the very best men in different parts of the country, would have such a variety of views concerning the same subject. And yet it is true.

I believe in trying to build up the general health in this phlyctenular trouble and the child, I tell the mother, should be bathed and rubbed down thoroughly twice a week, until a good healthy action is brought about by the skin, to give it good substantial diet, light supper but lots of good sweet milk. In regard to local treatment I use, usually, the yellow oxid of mercury ointment. I apply this from three to six times a week, owing altogether to the severity of the case, and if there is much photophobia and inflammatory action I prescribe also atropin, instilled into the eye, three or four times a day so as to guard against any ciliary complications.

I protect the eye with dark glasses or by keeping the child in doors during the day and have it take its exercise in the twilight of the evening. If this does not arrest the ulcer in a few days I apply directly to the ulcer, once a day, a solution of argentum nitras, neutralizing the amount that might reach the healthy tissue with a solution of chlorid of sodium

Under this course of treatment, from one to three weeks, my patient usually gets well. I have, in a few instances, applied the galvano-cautery and have got very good results from that treatment. However, in the majority of cases I think this latter treatment a little too heroic.

In applying the yellow oxid of mercury, if you will mix a drop or two of water with the same amount of mercury it gives us a perfectly smooth solution, which it is impossible to obtain by simply mixing with the vaselin.

Dr. Murrell—I use the yellow oxid locally and have frequently had complaint from its use. In reference to the method of preparing the yellow oxid I think I can suggest something better than mixing the powder first with water and then with vaselin. My druggist for a long time used this method but at my suggestion substituted olive oil instead, which readily blends with the fatty excipient and gives a uniform ointment.

In concluding the discussion Dr. Dudley S. Reynolds said:

Mr. President, I am quite surprised that Dr. de Schweinitz should have misunderstood my remarks in reference to syphilis. I am sure no one would make a diagnosis of syphilis from any peculiar appearance presented in any form of phlyctenular ophthalmia by reference to the eye alone.

I have seen cases which I felt sure were due to syphilis, but other manifestations of syphilis, so distinctly characteristic as to leave no room for doubt were present, without reference to the disease of the eye.

I quite agree with Dr. Gradle that nasal diseases are frequent complications, upon the relief of which, the successful treatment of the eye depends.

My neighbor, Dr. Thompson, points out the value of climatic changes. He frequently observes a large number of these cases in the early summer, and if he is able to induce the parents to take the child away from the city, and remain until fall, he frequently finds no other treatment necessary. I feel impressed these cases fall into the hands of general practitioners, and get quinin, iron, the iodids, baths, outdoor exercise, and the mineral waters, which, with change of diet bring on such improved states of nutrition as to completely remove the constitutional dyscrasia, upon which the local disease in the eye depends.

Dr. Connor of Detroit, expresses an important truth in his statement that hospital cases frequently relapse on returning home, and speedily recover when subjected to the hygiene and improved diet of the hospital.

Eczematous eruptions of the face, and especially about the eyelids, should be treated as complications merely, and not as causes of phlyctenular disease; the yellow oxide of mercury ointment is no doubt valuable; in fact I am sure it is in eczematous complications, and in some chronic ulcerated forms of keratitis, but those are not to be counted as ordinary types of phlyctenular disease.

The point I tried to make plain in my paper is, that all local diseases known as phlyctenular ophthalmia, not clearly due to traumatic causes, should be regarded as local manifestations of a constitutional dyscrasia, that constitutional treatment is always demanded, and local treatment if applied at all, should be mild and soothing, and never stimulating or irritating in character.

Syphilitic cases are to be known by other manifestations independently of the disease in the eye, and call for certain modifications in the constitutional treatment only.

DR. GRADLE—A number of cases of phlyctenular ophthalmia will get well as quickly whether treatment be applied or not. In other cases local applications change the course of the disease in such a decisive manner for the better, that no doubt can occur as to their efficacy. In many of these cases where we can get a definite history we will find that the phlyctenular keratitis is preceded by a purulent rhinitis, and by proper attention to the nose the patient will often recover more promptly than if the nasal trouble is ignored. Others are caused by adenoid growths in the pharynx and the removal of same very decidedly affects the case.

While admitting the great importance of proper hygiene, rational diet, fresh air and baths in the prevention of relapses I can not say that any personal observation of mine or statements by others have ever seemed to me conclusive as to any influence of so-called constitutional treatment in the course of the attack.

DR. DE SCHWEINITZ—If I correctly understood Dr. Reynolds that inherited syphilis was one of the causes of phlyctenular ophthalmia, I doubt if evidence to prove this assertion can be produced. In so far as the treatment of phlyctenular ophthalmia is concerned, which I prefer to denominate phlyctenular kerato-conjunctivitis, while agreeing with all that Dr. Reynolds has said concerning the advisability of good food, hygiene and proper diet, I believe local measures are of the utmost importance. I am particularly impressed with the necessity of treating the nasopharynx in cases of phlyctenular ophthalmia of relapsing character, not alone because of the almost constant association of catarrhal rhinitis, tumefied turbinals, or adenoid vegetation, which of themselves are probably causative factors, but because their removal often suffices to remove the disease, to prevent a relapse and directly to improve the whole physical constitution of the patient. The disorders of dentition bear some relationship to phlyctenular keratitis. Borrowing an expression from Harrison Allen, I would advocate the exploration of the entire "cephalic mucous membrane" whenever this disease is manifest, and the correction of any anomalies which may be discovered.

In closing, I would refer to the relation of astigmatism to this disease as taught by Martin of Bordeaux, who has pointed out that phlyctenular kerato-conjunctivitis is common at that age of life when the habits of the child become such that the effects of accommodative strain, the result of an astigmatic cornea, are likely to become apparent.

DR. BAKER—This is an important subject to the practical ophthalmologist and is one on which I should like to see more stress laid as to the general treatment. The main thing in the treatment of phlyctenular ophthalmia is the improved general health of the child, and it is not from any direct interference with the eye. I think the best thing that can be done is to take these children away from their families and put somewhere where they can be treated and dieted just as you would have them. I believe that one of the best remedies is arsenic in small doses; one drop three times a day of Fowler's solution.

DR. GIBSON—I wish to say only a word on this line, in regard to the diet of children. I think this a very important point, at least it has been in my experience. We should study the diet of the children; then we know how to get at the treatment. If we take away from a child what it likes it is not going to do well. We may give maltin or extract of malt to aid in the digestion of starches. Let them have their bread and potatoes. Cod liver oil will supply the food in the line of meats. You can get most children to use cod liver oil without trouble.

PURULENT OPHTHALMIA FROM THE STANDPOINT OF ITS SPECIFIC MICROBIC CAUSE;

WITH A PLEA FOR A MORE ENERGETIC, RATIONAL, ABORTIVE TREATMENT WHERE POSSIBLE.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee.

BY ALFRED HINDE, M.D.

SENIOR SURGEON EYE AND EAR DEPARTMENT, CENTRAL FREE DISPENSARY; OPHTHALMOLOGIST TO THE NEUROLOGICAL CLINIC, AND ASSISTANT TO THE CHAIR OF OPHTHALMOLOGY IN RUSH MEDICAL COLLEGE, CHICAGO, ILL.

Progress is the watchword of ophthalmology, and we all wish to avail ourselves of the garnered harvest of the bacteriologist, and apply his well ascertained facts to the orbital corner in which we are specially interested. So much ink has been used; so many brains employed for so many years on this threadbare subject of purulent conjunctivitis that it would seem to be an act of supererogation to again ask attention to it. Yet when we consider its vast importance as a frequent cause of blindness, another modest effort to simplify the apparently different conclusions of equally authoritative observers is excusable.

Further than a bare hint that the gonococcus occasionally resides in the discharges of an efflorescent purulent ophthalmia, little is *usually* mentioned of this specific microbic cause in the great mass of contemporaneous literature. It would seem that since Neisser[1] of Breslau, in 1879 discovered this

diplococcus, the peculiarities of its existence, growth, action and habitat have not been as *universally* considered by our clan as the importance of the subject demands, and to this fact is mainly answerable the diverse methods of treatment of the results of this potent microörganism. It is, therefore, in the literature of the genito-urinary tract that we find our richest rewards of observation, and in the subsequent lines the statements made are largely drawn therefrom.

As special students we must extend our observation to all the data of the microbe under consideration, for it is now scarcely contestable that the majority, if not[2] all, the cases of purulent conjunctivitis are produced by this coccus,—as proven by careful microscopical research; and through cultivation or implantation experiments by competent bacteriologists.

This bacterium is variously described as spheroidal,[3] ovoidal, hemispherical[4] or biscuit-shaped with one surface flattened. It appears in pairs, or multiples, with the flattened surfaces toward each other, hence a diplococcus. It multiplies by elongation and division, and a single[5] germ gives rise to a colony. In size it varies with age but its usual dimensions are about 1.6 micro-millimeters from[6] pole to pole, and in width about 0.8 to 0.6 micro-millimeters. It thrives on mucous surfaces, and best on those covered with a cylindrical or a modified cylindrical epithelium. It stains readily with the basic anilin dyes. Pus spread out in a thin layer on a cover glass, dried naturally, passed rapidly and momentarily through a spirit flame to coagulate the albumen, immersed for one minute in a solution of[7] 1 part methyl-blue, 33 parts alcohol and 66 parts water, then well washed in water, dried carefully, and mounted in (turpentine) balsam or glycerin, and examined with a magnifying power of 450 or more diameters will demonstrate the blue-stained microbe, if present. Steinschneider,[8] however, regards Gram's[9] method of staining microörganisms as necessary to the satisfactory study of the gonococcus, as a positive characteristic of it is that by this plan it is not stained, "while nearly all other diplococci found in the urethra are colored thereby." Roux[9] also agrees with this conclusion after a study of eighty-six gonorrheal patients, and Senn adds: "The entire certainty of this test is rendered absolute by the observation of the further characteristic of the gonococci, namely, that they are found within the pus corpuscles."

Dr. J. Schutz[11] of Frankfort, advocates a method of staining that depends on the known resistance of the gonococcus to acetic acid after being colored with methyl-blue. Preparing the cover glass in the usual way it is allowed to remain for five to ten minutes in a cold, filtered saturated solution of methyl-blue in 5 per cent. carbolic water. It is then water washed and dipped for one moment, or until one, two, three, can be counted, in acetic acid water (acid acet. dil. mv: aq. 20 cc.) and immediately washed in pure water. The acetic acid decolorizes all other organisms except the gonococcus which remains distinctly blue: "Double staining with safranin can now be done when the gonococci and epithelial cells show a blue color, while the pus cells and their nuclei are found salmon colored."

Experimental cultivation of the gonococcus is difficult save in the serum of human blood, or less well in animal serum, either solidified by sterilized gelose (M. Hueppe[12]). Inoculation with pure cultures[13] invariably produces gonorrhea in man. In drying the microbe loses its virulency, and pus containing it after dessication, fails to produce the specific[14] inflammation either when applied dry or when moistened with water. Again, the microbe does not long retain its virulency when kept moist, yet removed from its chosen soil, for Welander in four implantation experiments made three with pus from one to several days old and in these the results were negative. In the fourth the pus was removed only three hours before and kept at body temperature, and on the third day after implantation smarting was complained of, and two days later a typical gonorrhea developed. Two experiments in which the pus was exposed to a temperature near freezing resulted negatively. Wertheim, however, claims that their virulency is not lost rapidly in artificial culture media, for he found a four weeks' culture in human blood, still very virulent. He says the microbes must be protected against dessication and that they develop better when protected from oxygen.[15] The artificial cultures grow only at body temperature and the colonies readily die off. Subcutaneous injection of gonorrheal pus in animals produced no reaction[16] and in twenty-four hours afterwards the cells remained unchanged but the gonococci had disappeared. Wertheim[17] claims that it can produce peritonitis in some animals and he found the microbe in the walls of the abdomen, in the epithelium and connective tissue, and that it travels like other pyogenous germs by way of the lymphatics.

During research the gonococcus has been found in the urethra, bladder, kidney, perimetric abscesses following gonorrhea, in the purulent contents of joints in gonorrheal synovitis, in the conjunctiva, rectum, uterus, cervix, vagina, vulva and in Bartholin's glands. Its principal habitat in the pus corpuscle is more important than its diplococcus form. When implanted on the mucous membrane of the urethra or on the conjunctiva, its first growth takes place upon the epithelial layer and the deeper parts are not invaded until, by inflammatory or chemotactic changes, the intercellular cementum has been dissolved, thus loosening up the epithelia and opening up *inter* and *sub* epithelial passages. Without these changes deep or sub-epithelial infection can not occur, and Bumm[18] claims that on account of the dense, compact epithelial layer of the adult vagina that a true gonorrhea of this tract is impossible, while it may occur in children. He further states that: "The stratified epithelium of the bladder is impenetrable to the gonococcus." In the incipient stage of infection the secretion is merely an exaggerated physiological one of thin mucous fluid somewhat serum-like in appearance, and containing mainly exfoliated epithelia and a few pus cells with the diplococci present on the surface of the epithelia and a few are found within the pus cells. Soon the microbe penetrates the sub-epithelial lymph spaces and the inflammation extends more deeply and after the second or third day the secretion becomes profuse and contains fewer epithelia with pus cells greatly in excess, and from 2 to 3 per cent. of the latter contain gonococci and usually two or more in a corpuscle. From now on the pus cells increase relatively in number to the epithelia, and more of them con-

tain the microbe until 20 per cent. possess them. When the subacute stage is reached the epithelia increase in number and the pus cells become fewer yet a greater proportion of the latter contain the gonococci, and more numerously. In the fourth week the epithelia are most numerous and possess the microbes while the pus cells are few. It is claimed that the cell nucleus can be invaded, and that the cell may also become distended and ruptured by the number of the contained cocci. Extra-cellular gonococci are also plentiful. Human serum we have noted as the choicest medium for their growth, hence the virulency of this infection in purulent conjunctivitis.

This bacterium produces suppuration only on continuous mucous surfaces, and it results from the irritative effect on the tissues of the absorption of the chemical substances produced by them, because pus cells emigrate to the surface before the microbes have reached the vascular layer. These same pus cells are but dead embryonal cells, or leucocytes, attracted by phagycytosic action to the infected focus in order to prevent the ingress of the cocci, or to destroy them, and by embodying them within their own walls they become ptomaine poisoned themselves and destroyed. The inflammatory exudation of cells, fibrin, and serum tends to loosen up the epithelia and aids their exfoliation. Cessation of suppuration is not synonymous with stoppage of infection for increased irritation may again arouse the chronic inflammatory process still present.

The gonorrheal micrococcus and that of purulent ophthalmia are now almost universally conceded to be identical. Prof. Haab[19] of Zurich, claimed. "That the gonococcus is always present in the secretions of purulent ophthalmia and that it is never present in the simple inflammatory, or catarrhal form." Widmark[20] examined the secretion in twenty-four cases of purulent ophthalmia and found the cocci in most of them, free in the secretions, in the pus and the epithelial cells. He believes that during the incubative stage the microbes are only attached to the epithelial cells. This latter observation is in line with that of other examiners and most forcibly suggests an early, rational and effective treatment while the specific microbic cause is encompassable and before its ptomaine poisoning of the tissues has resulted in serious complications—due to impairment of their normal physiological resistance. Before exudative and immediate pressure have resulted in cellular necrosis and molecular death of the ocular tissues, thus producing an *infection atrium* for the entrance of the ordinary pyogenic microbes. Here the omnipresent streptococcus, and may be the staphylococcus, often take up the work of ocular destruction after the gonococcus indirectly has opened the doorway of tissue infection and reduced the resistance of the remaining cornea, and alas! they too often never end until the visual organ is utterly destroyed. That the gonococcus is a pus microbe in the usual sense is still debatable ground, yet cases have been recorded where this microbe has entered the circulation and produced metastatic abscesses after mural implantation in parts distant from the original focus. In these now numerously recorded cases of systemic infection, with septico-pyemic symptoms and occasionally fatal results, we have most often only the fever and the *locus minoris resistentiæ* produced by the absorption of the toxins of the gonococcus, followed by the localization of the floating pus microbes in the affected tissues of various regions of the body. In short, a secondary infection. The gonococci have, however, been demonstrated in the contents of such abscesses, and are also found in the effusions into the joints of gonorrheal rheumatics, and in the blood of such patients.

This condition of secondary infection suggests the query of the harmonious co-existence of the pyogenous microbes and gonococci on the same site. Here there appears to be apparently contradictory statements.

That secondary infection can occur was first positively proven by Breiger[21] and Ehrlich in 1882, where the pathological product of one infection aids in the localization of another kind of pathogenic germs,—one microbe preparing the soil for the growth of the other. The gonococcus it is claimed,[22] can so change the resistance of the tissues of the genito-urinary tract, of women especially, so that an easy invasion of pathogenic microbes occurs. As an example is given by Bumm a pure gonorrhea of the vulvo-vaginal glands which after the suppurative stage remains chronically inflamed for months and is followed by sclerosis and atrophy of the glands. But if a purulent infection is added the gland enlarges and suppurates but the contents of the abscess possess no gonococci: "The pus only contains the pyogenic staphylococcus, which has exterminated the gonococcus." Bumm also claims that a cystitis following a gonorrhea; that a suppurative parametritis after gonorrhea is analogous to a gonorrheal bubo, and all are examples of mixed infection, with pus microbes, because: "The gonococcus expends its action in the superficial layers of the mucous membrane exclusively." Delafield and [23] Prudden, however, after describing the location of the gonococcus and its subsequent inflammations write: "Under these complicating conditions the gonococcus may occur alone, or in association with the pyogenic cocci."

Prof Haab[24] in Zurich, often met with cases of iritis, irido-cyclitis and conjunctivitis in gonorrheal patients, "without any direct transmission of the urethral discharge" and in such no gonococci were found in the conjunctival secretion and the attacks were mild and readily overcome. These cases were examples of rheumatic and not microbic inflammations. He reports one case of mixed infection with metastatic joint abscesses, etc., with loss of one eye and great impairment of the other, together with persistent fever of many weeks' duration, and threatened death.

Dr. Bedford Brown[25] of Alexandria, Va., records a case of gonorrhea followed in three weeks by gonorrheal synovitis of both ankles and knees, with violent inguinal lymphadenitis of both sides, septic endocarditis, and "deep seated pain in the eye without conjunctivitis." The final result on the vision of the affected eye is not stated, and this is unfortunate because it may have been a metastatic suppurative choroiditis followed by phthisis bulbi,—a not very uncommon affection of the eye in cases of septico-pyemia arising from systemic infection with pus microbes.

A personal observation of such result may be given in the following case:

A child twenty-seven months old was taken sick with scarlet fever of mild character. Two days after the onset of the attack the left knee joint became

inflamed and the left eyeball was slightly reddened, and the submental lymph glands enlarged. The knee joint suppurated and was opened two weeks later and its purulent contents removed and finger-sized drains left *in situ* and treatment continued in the usual way. The irregular fever which varied from 99 degrees to 105 degrees F. still continued and septic pneumonia, or other focus, was suspected as the cause of its persistence, but nothing positive could be made out. At the end of six weeks from the onset of the sickness, and after the institution of marked marasmus, the left eyelids swelled up and the eyeball became red and chemotic, and supposedly painful. The appearance was that of a mild suppurative choroiditis and as the inflammation disappeared, the eyeball softened and began to shrink and nine weeks later this eye was sightless, half-sized and boggy. The neck glands did not suppurate and the septic fever gradually subsided and uninterrupted recovery occurred.

Innumerable cases of secondary infection after gonorrhea have been recorded and, amongst others of less severity, one occurred in my own practice in which, after an imperfectly cured gonorrhea, a prolonged cystitis with general septic infection followed, associated with an irremovable and intermitting fever, and exhaustion almost fatal. Recovery set in slowly on improvement of the urethral and bladder condition, the systemic microbes most probably being thrown out through the kidneys, as at no time could any local suppurative focus be outlined in any organ. One year later, after a new exposure and infection with the gonococcus, the cystitis recurred followed by septic infection and a left pneumonia of small area at first, and of insidious onset, and multiple subcutaneous abscesses, together with a profuse suppurative otitis media of the right ear. No crisis occurred but the lung inflammation continued to spread until fever and heart exhaustion, practically unaffected by all treatment, resulted in a fatal issue. In this case the gonococcus twice prepared the soil for the successful implantation *in loco* of the commoner streptococcus pyogenes—as this is the microbe, that is almost solely and invariably found in these cases.

The gonorrheal microbe, however, can not always be blamed for the production of the *locus minoris resistentiæ* within the ocular tissues. It is well known that floating pus microbes are present in the blood current of many marasmic patients. All that is necessary for the localization of these cocci in the ocular tissues is a reduction of the normal physiological resistance of some portion of the eyeball. In these non-resistant cases this can be brought about readily by inflammatory changes and operative procedures.[26]

Here we have an explanation of those eyes lost in a suppurative process after perfect healing of the corneal wound, subsequently to a smooth cataract extraction. We must invigorate such patients and remove these bacteria before we add operative insult to their tissues. Again, it is well known that pus microbes can long remain quiescent in old osteomyelitic foci and years later become virulent when suitable conditions of tissue injury arise for their multiplication. Have we not a parallel to these surgical cases in those old sympathetically and otherwise inflamed eyes that flare up into acute inflammation as soon as we attempt to remove the old exudate, or perform an iridectomy? The imprisoned microbes are set free by our manipulations and are again surrounded by a suitable environment for activity and reproduction. For diagnostic purposes the presence of the gonococcus within the pus corpuscle implies a gonorrheal origin of the eye affection, and yet by so many, and devious paths it reaches the conjunctiva that in some cases its source is past finding out, and we may, unfortunately, be led to question the specific character of the conjunctivitis, unless we look for and find the micro-organism. For a moment we may consider the immediate and remote sources of infection. The essential element is carried to the conjunctiva usually on fingers, linen, or sponges, may be from unclean wash basin or other object in auto or other cases, accidentally or intentionally. Dr. Symes,[27] in the meeting of the New York Academy of Medicine, Nov. 10, 1890, called attention to the supposition of the ignorant gonorrhea sufferers who, in some instances believe that they can get rid of the disease themselves by giving it to somebody else; and at the same meeting Dr. Robert Abbe[28] said that Dr. Willard Parker had given expression to a similar observation. Twice patients of my own have asked me if this unclean intent was not a fact.

Age does not limit the possibilities of an infective source, for catarrhal inflammation, usually of gonorrheal origin, of the vaginal mucous membrane is not infrequent[29] in the newborn, and the infant and youthful vulvo-vagina often equals the adult tract as a prolific focus of infection—the parents, or adults, being the initial source of all such cases. Moreover, the normal puerperal vaginal secretions will not[30] produce a specific catarrhal inflammation of either the vulvo-vagina or the conjunctiva. Potts[31] examined ninety-six cases of purulent vulvo-vaginitis in children, a majority of whom were under five years of age, and he believed that they were all of some specific infection, and examination of the discharge usually revealed the gonorrheal microbe, and only three cases were due to direct gonorrheal infection. Prochownick[32] found the cocci in seventeen out of twenty-one similar cases, and in these urethritis was a prominent symptom. Sanger[33] thinks that pyosalpinx and pelveo-peritonitis of young virgins is possibly due: "To a gonorrhea contracted in childhood through indirect infection." Spaeth[34] in twenty-one cases of vulvo-vaginitis in girls from three to eleven years old found gonococci in the pus of fourteen, and the urethra escaped in the non-specific cases. On investigating the source he found that the mother had gonorrhea in eleven, the father in two, and violation had occurred in three of the children. Gonococci are most numerous, he says, in the urethral discharge of adult females with gonorrhea.

Dr. Van Arsdale,[35] at the New York Academy meeting already referred to spoke of three cases in young female children, the youngest being only ten months old, and said that he saw about ten such cases yearly and attributed the infection to sleeping with parents. Dr. R. Abbe reported a gonorrhea in a boy three and one-half years old, contracted from a nurse, and gonococci were found. Dr. Hugo Feleki of Buda-Pesth, before the twenty-fourth meeting of the Hungarian physicians and scientists at Kronstadt, recently held that blennorrhea is much more common in women than is generally

supposed, and its consequences more far reaching than would appear. The women are infected in the first days of matrimony by husbands supposed to be but not actually cured of a chronic gonorrhea. He claims that the urethral inflammation may exist for some years without secretion showing, and yet will provoke in women a typical gonorrhea.

From the foregoing, the genitalia of the female would appear to be the most fruitful source of infection, and mothers and nurses the most probable starting point. On this account conjunctival inflammations in females should always be regarded with greater suspicion than in males, and I have very frequently remarked the onset of a purulent conjunctivitis in adult females commencing soon after the initiation of the regular menstrual flow—the auto-infection being most probably due to unclean fingers in infected subjects. For obvious reasons in both sexes a commencing right eye inflammation alone is more liable to be specific than simple. From such frequent possible sources of infection as we have here shown, together with the great frequency of the presence of the gonococcus in the purulent discharge from the genital canal, it would seem to be injudicious in practice to doubt the gonorrheal origin of all our cases of purulent conjunctivis. Better for our patient's safety if we immediately consider the graver diagnosis and institute correspondingly effective measures of relief.

We have fixed the cause of the disease and located its exact position in the epithelial layers of the mucous membrane, and in those portions of the conjunctival sac covered with a cylindrical or a modified cylindrical epithelium, viz., the palpebral portions and that of the fornices, the very parts that give evidence of the greatest inflammatory reaction. Whereas the ocular or scleral conjunctiva and the surface of the cornea remain practically unaffected, because of their compact, stratified, epithelial layer, until pressure necrosis results in ulceration and secondary infection.

A good prognosis depends upon adequate treatment in the early periods of the disease, and before ocular complications occur.

Prophylaxis is advocated and abortive treatment resorted to in purulent ophthalmia of the newborn eye. Why is it not equally advisable in all eyes so affected irrespective of age? Logic and sound judgment point undeniably in such direction. In all these purulent cases there is a period of apparently simple catarrhal inflammation associated with a lachrymal-mucous secretion. A time during which the microbes are only on the surface of the epithelial cells and before the ptomaine poisoning of the tissues has resulted in attracting the emigrating leucocytes from the capillaries to the surface of the mucous membrane.

The general practitioner is the most favored in seeing these cases in this stage and, unfortunately, he fails too often to recognize its import, and either neglects treatment or prescribes the usual zinc solution, and the case is too often not referred to the specialist until complications have arisen and fear possesses the medical mind. *Without microscopic diagnosis no one can foretell the limits of a conjunctival inflammation when seen in the earliest stage! Any case may become purulent after sufficient time has elapsed, if the necessary microbe has been implanted!* Careful inquiry during the incubative period of these cases often gives positive evidence of a proximate gonorrheal focus, in men especially. Whereas, in women, beyond eliciting the information of the omnipresent vaginal discharge, an inquiry is usually negative. In busy practice we can not easily stop to stain and examine with microscope the discharge in every case of conjunctivis. *Can we resort then to any therapeutical procedure in all such cases that will prove adequate in the purulent and at the same time harmless in the simple inflammations? We can most assuredly.* The genito-urinary surgeon has authoritatively advocated the abortive treatment of a gonorrheal inflammation in his own domain, and briefly we will refer to his conclusions. At a late meeting of the International Dermatological Congress Prof. Neisser[36] still maintains the etiological importance of the gonococcus. That microscopic discovery of the microbe in the secretions of gonorrhea is essential to a correct diagnosis. That it is only in the first stages that the virus is accessible in the superficial layers of the epithelium and is then easy to treat. His aim is to prevent an acute changing into a chronic urethritis, and referring to treatment states: "It should therefore be commenced as early as possible after infection."

(To be continued.)

Duels Better Fought in the Early Morning.—The *St. Louis Globe-Democrat* is our authority for saying that the best time for going into battle is just before breakfast. That paper gives us the following item:

"Dr. Bernays greatly interested Surgeon General Sternberg by a proposition he laid down that when a man is shot in the abdomen shortly after eating a hearty meal the danger is much greater. "A case of that kind should be operated upon in every instance," said Dr. Bernays. "If the bowels are empty, or nearly so, the same wound may be treated without operation."

"Applying that theory to soldiers?" remarked the Surgeon General tentatively.

"I would say they ought to do their fighting before breakfast," put in the specialist.

From time immemorial, the early morning hour has been the chosen time for the duello, for the "settlement" of private quarrels. It is a logical arrangement, and moreover the appetite for breakfast is not sharp until after the quarrel has been appeased.

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3 Delafield and Prudden, Pathological Anatomy and Histology, 4th Ed., p. 572. 4 Senn "Surgical Bacteriology," p. 230.
5 M. Wertheim, Annales de Micrographie, T iv, No. 7, 1892, p. 59.
6 Legrain—"Arch. de Physiolog. norm. et path," 1887, No. 6. See Senn l. c., p. 230, et seq.
7 Smidnoff—quoted by Senn l. c. p. 231.
8 Quoted by Senn l. c. p. 239, also Medical Record, March 14, 1891, p. 317. 9 Senn l. c. p. 240.
10 Delafield and Prudden, l. c., p. 132.
11 Medical Record, Nov. 23, 1889, p. 568; Senn, l. c., p. 232 from "Münch med. Woch." No. 14, 1889.
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13 Bumm, Bokar, Bockhardt, quoted by Senn, l. c., p. 233.
14 Welander, quoted by Senn, l. c., p. 233; Wertheim, l. c.
15 Delafield and Prudden, loc cit. p. 165.
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17 loc. cit. 18 Quoted by Senn, loc. cit. p. 235.
19 Quoted by Senn, loc. cit. p. 236. 20 Ibid.
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22 Bumm (Le Bull. Méd., Dec. 25, 1887), quoted by Senn, loc. cit. pp. 49–50. 23 Loc. cit. p. 165.
24 Correspondence, British Med. Jour., June 2, 1888.
25 Medical Record, Nov. 21, 1891., p. 640.
26 See H. Knapp's "Experiments on the Action of Bacteria on Operations of the Eye." Archives of Ophthalmology, March, 1886, pp. 24–50.
27 Medical Record, Dec. 20, 1890, p. 711.
28 Loc cit. pp. 711–712.
29 Delafield and Prudden loc. cit. p. 578. 30 Noyes loc. cit. pp. 299–300.
31 Arch. f. Gynäk, B. xxxii., Heft 3, quoted by Senn l. c. p. 239.
32, 33 and 34 Ibid. 35 Medical Record, Dec. 20, 1890, p. 711.
36 Atlanta Medical and Surgical Journal, Chicago Medical Bulletin, April 1, 1893.
37 Paris Cor. of the JOURNAL AM. MED. ASSOC quoted by the Medical Record, Nov. 3, 1888. p. 552.
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METHYL-VIOLET—ITS PLACE IN THE AFFECTIONS OF THE EYE.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY FLAVEL B. TIFFANY.

KANSAS CITY, MO.

Since the day I first read and translated Prof. J. Stilling's articles on the subject of methyl-violet as they appeared in the *Revue General d'Ophthalmologie* in the year 1890, I have almost daily resorted to the drug as one of the remedies in the treatment of the various affections of the eye. For perhaps a year or more from the time this drug, as a therapeutical agent, was introduced by Prof. Stilling (as is the case with most other new remedies indorsed by authority), it was extensively discussed in all medical literature throughout the land. Many if not all ophthalmologists tried it in one form or another in one disease or another, and some were pleased with it while others were disappointed. Some were satisfied of positive results and added it to their list as a good and reliable remedy. Others were disappointed, getting as they believed no good effect so discarded, denouncing it as without merit.

When my attention was first called to the therapeutic properties of this agent, it happened that I had several patients on hand suffering from serious diseases of the eye; such as suppurative inflammation of the uveal tract, which had resisted all known treatment ordinarily used, and were marching on to the destruction of the eye. In these cases the methyl-violet certainly checked the disease and in some of the cases I believe it saved the eyes. In my enthusiasm and from Stilling's glowing account of its positive antiseptic qualities as an indemnity against all pyogenic influences, taking but the slightest attenuation to prevent all decomposition and putrefaction in any and all conditions, I employed it in nearly every affected eye that came to my public clinic as well as that of my private practice.

I tried it in all forms of conjunctivitis, in simple catarrhal ophthalmia, phlyctenular, granular and purulent ophthalmia; and in the different forms of iritis, dacrycystitis, hyalitis; disease of the cornea as the different forms of keratitis, ulceration of the cornea; in diseases of the choroid; in fact, there is scarcely a disease or affection of the eye in which I did not use methyl-violet. Not, perhaps, from my credulity or great faith in its panasite properties; and yet if it was the non-irritant and searching antiseptic that was claimed for it, taking for its predilection the germ of all activity, paralyzing and destroying all pyogenic bacteria and believing as we do that the etiology of disease is of some form of microbe, it would not be wondered at that in my eagerness I should give it a thorough trial which I did. In many diseases I have found it most efficient, while in others non-efficient, being as it were perfectly nil. In some I have found it positively harmful, acting as a decided irritant. In some cases where it has been long continued I found that it produced pain and soreness of the globe and in some instances I believe atrophy has followed in consequence of its continued use.

In most forms of conjunctivitis it is non-reliable. In purulent ophthalmia, as of the newborn or gonorrheal, its action is so uncertain as to make it unreliable; in some instances it has worked like a charm, acting as an antiseptic and dispelling purulency like magic; in others it seems to have no effect, or if any that of an irritant. In one case of ophthalmia neonatorum where the baby's eyes were doing fairly well, but not being quite satisfied I resorted to the use of methyl-violet, suddenly the eyes grew worse and they went from bad to worse and in spite of all I could do the cornea sloughed and both eyes were lost.

I have been disappointed in its efficacy in trachoma. In this disease it is entirely nil, or has been in my hands, with very few exceptions. I recall, however, one or two cases where in trachoma with blennorrhea of a chronic persistency, resisting all ordinary treatment, as of the trachoma forceps, brushed with the toothbrush, etc., by the use of methyl-violet a speedy cure was brought about.

There is one form of conjunctivitis and that one too that is most obstinate, frequently resisting for many months all treatment, where the methyl-violet has in my hands and with the proper systemic treatment worked speedy cures. This is phlyctenular conjunctivitis. In nearly all forms of keratitis that frequently extend over a period of ten to eighteen months before a cure can be brought about, and then at the best, conicity of the cornea with myopia, I have with methyl-violet cut short the disease where the cornea was so densely opaque as not to admit of any perception of the iris or pupil. In absolute blindness due to dense opacities of the cornea, I have succeeded in clearing the cornea in as many days as ordinarily requires months with the old treatment.

In ulceration of the cornea it is a most valuable remedy, next in efficacy to the thermo-cautery. In suppurative iritis from its penetrability, non-irritant and antiseptic properties, as well as of a mydriatic it is of great value. In hypopyon it acts like a charm cutting short the suppuration. Soon after it is dropped upon the cornea you will see the pus in the anterior chamber taking on the violet stain, and in a few hours the pus begins to diminish in quantity and frequently have I cleared the chamber of quantities of pus in a few days, where panophthalmitis was imminent. In hyalitis and all affections of the uveal tract it is efficient, and in one case that I had diagnosticated as melano-sarcoma of the choroid, the tumor by the use of methyl-violet was held in abeyance; and in one case of glioma of the retina the methyl-violet arrested the growth and as long as the child was under observation, (for several months), the tumor gradually diminished.

To sum up, the affections of the eye in which methyl-violet seems most efficient and reliable are the following: phlyctenular conjunctivitis, phlyctenular keratitis, interstitial keratitis, ulceration of the cornea, abscess of the cornea, hypopyon, all forms of iritis (especially if combined with atropia) in diseases of the choroid, as choroiditis and hyalitis, tumors of the choroid and tumors of the retina and in chronic leucoma.

Among those affections in which it seems to be non-reliable or contra indicated, are most forms of conjunctivitis, trachoma, marginal blepharitis, purulent ophthalmia and pannus.

The form of the drug that I employ is the solution 1-2000 to 1-1000 in strength; occasionally I have employed as strong a solution as 1-500. The pomade has not been at all satisfactory in my practice.

DR. J. H. THOMPSON—Individually I have not used the methyl-violet, but I have seen it used in several cases, and I have never seen it used but that most valuable time was

lost. I have seen it used in eyes and they would be destroyed, not from the methyl-violet but because a disease was thus allowed to run too long for any after treatment to be effective. In general surgery as well as in ophthalmic practice such has been my observation, so I have come to the conclusion that the drug is useless.

DR. HOTZ—Observations of this kind are absolutely worthless. To use a drug indiscriminately for almost every disease the eye may be afflicted with is not a scientific experiment but empiricism. Methyl-violet was introduced by Prof. Stilling under the name of "pyoktanin," i. e., pus killer, to emphasize its most prominent quality. Now if we wish to find out for ourselves whether this remedy possesses this pus-destroying power in so eminent a degree we must test its power in such suppurative affections which we know usually run a very destructive course. Serpiginous ulcers of the cornea, hypopyon keratitis, gonorrheic conjunctivitis, these are conditions where pyoktanin can show its virtues if it has any. My tests had the following results: in suppurations of the cornea it seemed to arrest the formation of pus cells; for the hypopyon and the yellow infiltrated border line of the ulcers disappeared; but in most cases the disintegration of tissue went right on leading to extensive softening, and eventually to perforation of the cornea. In one case of incipient gonorrhea of the conjunctiva pyoktanin seemed to cut short the attack; only a mild form of simple conjunctivitis followed its use. But in other cases of gonorrheic ophthalmia, in all cases of blennorhea of the membrane its applications were utterly ineffective. I have come to the conclusion that pyoktanin is a useless remedy. But when we are told it had cured a glioma of the retina, I believe the only rational explanation we can offer is that there was a mistake in the diagnosis.

DR. TIFFANY—Dr. Hotz in his remarks deprecates the efficiency of methyl-violet in neoplasms and all forms of tumors. He says that all that is claimed for it is its value as an antiseptic. We all know that this drug in our histological preparations is one of the best stains that we have, taking for its predilection the nucleus of the cell. If we concede that the drug is an antiseptic, a destroyer of microbes, I see no reason why it may not in a similar way control cell proliferation of tumors and neoplasms; at any rate, we all know that it has been extensively used not only here in America, but in Europe, and by good authority who claimed for it the power of checking if not dissipating entirely these growths. I am sure my experience will bear me out in all I have said in my paper. Very recently, within the last few days, I had a case of hypopyon where the anterior chamber was filled with pus in which I used methyl-violet with excellent results, clearing the chamber in a few days. In phlyctenular keratitis I have repeatedly used it with most satisfactory results. I have been disappointed in its use where it was most recommended by Prof. Stilling, viz.: in most affections of the conjunctiva. I have found it most useful in the affections of the uveal tract and of different intra-ocular affections.

QUIESCENT FOREIGN BODIES WITHIN THE EYEBALL WITH A REPORT OF CASES.

Read before the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association at Milwaukee.

BY WALTER B. JOHNSON, M.D.

PATERSON, N. J.

SURGEON TO THE PATERSON EYE AND EAR INFIRMARY.

When the eyeball has been penetrated by any extraneous material the resulting injury and probable subsequent irritation and inflammation is always regarded with the utmost concern by the surgeon in attendance. Even if the particle comprising the foreign body is very minute, if the impact has been sufficient to cause it to penetrate the walls of the eyeball and it has passed within the globe, it is a grave and serious condition. The prognosis is nearly always unfavorable, as it may immediately become a source of severe suppurative inflammation resulting in destruction of the eye, necessitating its enucleation, or if allowed to remain may eventually result in disease of the injured eye, or possible sympathetic irritation and inflammation of the fellow eye. Should a foreign body have entered the globe and only a moderate inflammation result, the question of its possibly becoming encysted and remaining quiescent, presents itself for consideration, and unless the location of the injury and the position of the foreign body should preclude the possibility of strenuous efforts resulting in a successful termination, or delay should endanger the fellow eye, all eyes should be given an opportunity to become quiet.

The eye should be treated in all cases of foreign body with antiphlogistic medicines and applications, and general medications should be administered, when indicated; the object to be attained being the preservation of the eyeball even though it is almost certain that the eye will be sightless. Should the possibility exist of sufficient sight being retained to render the eye of any service to the patient, the efforts to quiet it should be continued as long as there is any probability of the inflammation subsiding; for, a natural eyeball, if not unsightly or a constant menace to the fellow eye is infinitely preferable to an artificial eye which is always a source of discomfort, and even if most carefully matched and constructed, somewhat unsightly, in addition to being a constant expense to the wearer.

The question of the possible after effects of a present foreign body is of importance and the many cases reported in which even very small particles of steel have, after years of quiescence, become a source of such severe irritation that the fellow eye has become diseased, or an enucleation of the eye rendered necessary, have had a tendency towards preventing protracted efforts to save eyes which seem to be too severely injured to undergo a satisfactory reparative process. If a patient carrying an encysted foreign body can not at any future time be easily reached, or may pass entirely from proper observation in case of subsequent irritation, as, under such circumstances there is a decided objection to the continued presence of a foreign body in the eyeball, the desirability of efforts at its removal by operation or even, if necessary, the enucleation of the eyeball itself should be carefully considered. The operation for removal of foreign bodies by the magnet has been performed in a large number of cases; it is, however, only moderately successful. It is an extremely dangerous operation and so serious a procedure that it frequently induces severe suppurative inflammation and subsequent loss of an eyeball which might under more conservative treatment have been saved.

The time required for an inflammation resulting from the presence of a foreign body in the eye to subside is frequently a matter of great importance, especially to a patient who has himself and others dependent upon his daily labor for their support.

In such a case where the time would be too long, extending over a period of weeks and perhaps months before the eyeball would quiet, and if the eye were so severely injured that it would be sightless and there were some danger to the fellow eye, immediate enucleation would be a perfectly justifiable procedure. The cases reported are presented for the purpose of illustrating the manner in which foreign bodies may enter the eyeball and become encysted in different localities, remaining perfectly quiescent and apparently no menace to the integrity of the globe, the sight of the fellow eye, and even in some cases the sight of the injured eye itself:

Case 1.—D. F., age 30; Irish, machinist; July 12, while working at his trade was struck in the right eye by a piece of flying steel. When first examined he had a severe iritic inflammation and a scar on the cornea, temporal side, near the limbus. The iritis responded readily to treatment by atropin and a leech. The eye quieted and was perfectly comfortable. There was no idea of a present foreign body and the patient was confident that there was nothing in the eye. He had no discomfort; his vision was normal.

September 1.—Again applies for treatment stating that one week ago his right eye became red and painful and had a feeling of scratching as if something was in it, with blurring of the sight and severe headaches. These symptoms had gradually increased until present time. On examination severe inflammation with sub-conjunctival infection, and a small black speck on the globe in the temporal region were observed; the foreign body, a small piece of steel, presenting near the limbus cornea in the supra-temporal quadrant was removed with some difficulty as it seemed to be tightly imbedded in the ocular tissues. It was one-eighth of an inch in length and very thin and sharp pointed. The irritation readily subsided under cold bathing and atropin, the eye became perfectly normal and the vision equally as good as that of the other eye.

Case 2.—J. R., 44; foreign body encysted in iris May 5, 1893; while working at his trade, machinist, a small piece of steel flew from the hammer and entered eyeball lodging in iris. First saw patient Tuesday, May 9. At that time the eye was congested and there was a small white fleck on the iris below. Had some pain; he could see well; ordered atropin; the pupil responded readily and the iritis gradually disappeared. May 15. Has no pain and very little redness; his eye feels well; ordered him to remove bandage and wore shade glasses. Atropin was discontinued and on May 22 there is no redness. The pupil is coming down and the foreign body is evidently encysted being covered with a white exudate. There is a very slight indentation on the edge of the pupil above the body; the vision is normal.

Case 3.—P. W.; steel in eyeball; one week before he applied for treatment while working at his trade, a machinist, a piece of steel flew and entered the right eyeball passing through the cornea and iris just below the pupillary margin and through or into the lens. The steel can not be seen either by direct illumination or with the ophthalmoscope. The lens is somewhat opaque and presents a glistening reflex. The pupil is slightly dilated, the tension of the eyeball very slightly increased, has had slight pain, but there is no discomfort at present and no inflammatory symptoms. The vision was 1-10 three weeks after the injury and on last advice had remained practically the same since time of injury until his death three months ago, never having caused him any discomfort, either in the injured or the fellow eye.

Case 4.—F. G., applied for treatment of an iritis, which he stated he thought might be the result of a foreign body which entered the eyeball twenty years before this time; he complained that he had on several occasions had attacks similar to the present inflammation; the pupil dilated considerably under atropin but was irregular. On the temporal side there was an iridodialysis which could be readily illuminated, and directly behind the opening there was upon the fundus a large, white plaque about the size of a pea. The vision in the eye was impaired being about 1-20. The iritis responded to treatment and the patient passed from observation still carrying the foreign body.

Case 5.—J. F., age 47. Seventeen years ago received an injury from flying steel in the right eye; the steel passed into the globe in the ciliary region on the temporal side of the eye. The sight was immediately lost and never returned. There was no opacity of the lens and no spot or plaque could be seen on the fundus to indicate situation of the foreign body. He has had occasional attacks of neuralgia in the right eye but never any inflammation. He was myopic before the injury, but the sight of the left eye has never been affected as a result of the injury. On Thursday three days ago he had a severe attack of neuralgia in the left eye which was the first he ever had in that eye. On examination there was no apparent disease of that eye. R. V. O. L. V. = 20-100 with — 1-15 = 20-20.

Case 6.—W. P., age 30; machinist. One month before presenting himself for treatment and while engaged in turning on a power lathe, a spicula of steel flew from the tool striking him in the right eye, and as he thought falling to the floor. He had no pain, redness or swelling and did not notice any feeling of discomfort at any time until the third day after the injury, when he thought that his sight in the right eye was diminishing slightly; from that time until date of first visit one month after the injury there has been absolutely no symptoms present, except a continued falling off of the vision in the injured eye. R. V. = 2-7. No improvement with glasses. L. V. = 20-20. By ophthalmoscopic examination and direct illumination a small piece of steel about the size of a pin head is observed situated in the lens above and towards its supra-temporal border; directly in front and somewhat below this point a corneal scar indicates its point of entrance; the loss of vision is due to opacities of the lens. September 15, 1884. The eye has given him no discomfort but the vision has steadily diminished until present visit when he only had perception of light. The lens is entirely cataractous and milkwhite in color. June, 1893, on examination: R. V. = 20-15 with + 1-3 1-2. The lens is entirely absorbed; the fundus on ophthalmoscopic examination is seen with perfectness with + 1-4. The foreign body can not be discovered it probably having sunken down close behind the iris. He never has had any discomfort of any kind and reports the eyesight in his injured eye of great service in discerning objects appearing on that side.

Case 7.—C. A., age 44. While hunting on Oct. 29, 1882, and one hour before presenting himself for treatment he received a wound in the right eye, scattering shot from the gun of a companion having struck him. The shot used was bird shot No. 6. It grazed the upper lid and entered the eyeball just at the limbus of the cornea leaving a small crescent shaped cut upon the globe. There was a considerable hemorrhage into the anterior chamber. There is but little swelling or irritation. Ordered atropin and cold water bathing. R. V. = perception of light. October 30 on the day following the injury, R. V. = ability to count fingers at 6 degrees. A new sub-conjunctival hemorrhage has occurred near the wound. The hemorrhage in the anterior chamber and also the sub-conjunctival hemorrhage were gradually absorbed; the slight inflammation subsided and the vision improved, the patient remaining under treatment for two weeks. When an ophthalmoscopic examination could be made no foreign body was located; there was a small plaque on the fundus in a direct line with the wound in the globe anterior and the possibility of the shot having passed entirely through the eye presented itself for consideration. The vision was still impaired when the patient ceased his visits.

July 24, 1891. Eleven years after the injury the patient was sent for and examined with the following result: he was unable to say which eye was injured and stated that he could see as well with one eye as the other. R. V. = 20-30 + 1-36 = 20-20. L. V. = 20-40 + 1-36 = 20-20. He has never had any discomfort since the original inflammation subsided. The vision in the injured eye is better than the other eye when not using glasses. The location of the foreign body is questionable, it probably having passed through the globe into the orbit behind the eyeball.

Case 8.—E. Q., July 10, 1889, while celebrating the Fourth of July, was struck in the right eye with some powder grains, a cannon having prematurely exploded. The grains of powder passed through the cornea and iris and into lens causing a traumatic cataract. The eye was still inflamed on July 10 when first seen; it quieted nicely under treatment and by August 2 was perfectly comfortable, although the corneal wound was still open at times and there was an occasional escape of aqueous. The lens remained cataractous, the wound of cornea closed and the vision was only perception of light. There has been no subsequent discomfort. May, 1892, when last seen the eye remains sightless.

Case 9.—J. McD., Oct. 24, 1887, was struck while working

as a laborer in blasting rock, by a piece of steel from a drill; the steel passed through the cornea and sclerotic at the limbus; a well marked inflammation developed with suppurative choroiditis. Enucleation was advised, but the patient declined to have the eye removed; after remaining in the hospital five weeks the pain and inflammation had entirely disappeared. There was tension of the eyeball and apparently an oncoming phthisis bulbi; there was only perception of light. On ophthalmoscopic examination the field presented a semi-organized exudation filling nearly the entire half of the vitreous, evidently the seat of the foreign body; the exudate on last examination still had a reddish tinge resulting from the blood coloring matter not yet absorbed; the eyeball is quiet and comfortable and there is no irritability of the fellow eye. The steel can not be seen, being probably concealed in the exudate mentioned above.

Case 10.—July, 1888, W. M., was engaged in firing a cannon on the Fourth of July; the concussion of the ramrod exploded the charge of powder prematurely; he was standing in front of the cannon and the charge shot into his face, filling both eyes with powder and pieces of grass and weeds which he was using as wadding; both eyes were injured and there were dozens of particles of powder and stubs of grass and weeds removed from them. The orbital cavity was literally full of such particles, which were lodged in the conjunctiva. His left eyeball was severely lacerated, and the right cornea had perforating wounds through which cannon powder had passed. The resulting inflammation was so severe that the enucleation of the right ball seemed absolutely necessary; the possibility of saving the left eyeball seemed very slight. Under active antiphlogistic treatment the inflammation gradually subsided; there was no light in either eye at first, but ten days after the injury he was able to count fingers with the left eye. No sight in right eye which was diminished in tension. Present condition, June 1, 1893, phthisis bulbi of the right eye which is considerably sunken and has cicatricial contractions. He never had any pain since the original inflammation subsided. The left eye has a large symblepharon on the temporal side and is discolored by powder stains; the cornea is clear showing two scars where grains of powder, which are lodged in the iris entered; the pupil is mobile; there are some opacities on the anterior capsule of the lens. There is a long narrow choroidal plaque extending from the temporal side of the optic nerve to the extreme limit of the field, undoubtedly due to rupture of the choroid from the force of the blow. R. V.= O L. V.= 20-200; no improvement with glasses. He has a sensation of light in the left eye which constantly flitters before the eye either night or day, seen even when the eyes are closed. He describes the light as a black center surrounded by moving light, no doubt due to the blind spot in the field of vision caused by the plaque at the seat of the choroidal rupture. He was at first troubled with rainbow light flashes, which would circle around and then burst, but as time passed he sees less of these; he thinks his eye is stronger than it was. He has no dizziness such as he constantly had for two years after the injury. No intolerance of light except in the early morning after working all night; he is employed as a night watchman and has been since the time of the injury.

Case 11.—July, 1889, W. V. S., while celebrating the Fourth of July was shot in the eye, the powder passing into the eyeball, penetrating the lens and causing a traumatic cataract; he had a severe iritic inflammation which finally subsided and the eye became comfortable but remained sightless for six weeks after the operation, when he ceased his visits. He never, as requested, came back for future examination.

Case 12.—July, 1892, P. H., while celebrating the Fourth of July was shot in the face, a small cannon loaded with blasting powder having prematurely discharged; two grains entered the eyeball and lodged in the lens passing through the cornea and iris. The eyeball was excessively inflamed and the pupil contracted, the lens cataractous and a considerable deposit of plastic materal in the field of the pupil. The inflammation subsided after six weeks of treatment and he was discharged with a fairly comfortable eye; his vision was only perception of light. He passed from under observation never returning for examination.

Case 13.—W. C., while celebrating the Fourth of July a cannon loaded with blasting powder was discharged by a companion and the powder entered the left side of face and eyeball, passing into the chamber of the vitreous. At first there was but slight irritation and the vision was 2-5; the grains of powder which could be seen on ophthalmoscopic examination gradually assumed a yellowish cast and increased in size until as large as a mustard seed; they presented a peculiar fuzzy appearance on either direct or oblique illumination. The vision was reduced to fingers at eight feet, the inflammation finally subsided, and one month after the injury the vision was ½. There was no further pain or irritation.

Case 14.—I. E., while at work in shop was struck in the eye with a flying piece of steel which entered the eyeball and lodged in the fundus causing a number of hemorrhages, forming a large stellate hemorrhagic spot on the retina. He could see one week after the operation to count fingers at twenty feet. He was under observation for three weeks; his eye having quieted, he was discharged. His vision was ¼. He never returned to report the subsequent condition of the eyeball.

Case 15.—C. B., a machinist; while striking a chisel a piece piece of steel flew from the head of his hammer and penetrated the eyeball, passing through the cornea, iris and lens, and lodging in the fundus at a point directly opposite its point of entrance. There was considerable resulting hemorrhage into the vitreous and some hemorrhagic spots on the choroid to indicate the point of impact of the foreign body, which could not be positively demonstrated by ophthalmoscopic examination. There were no opacities of the lens, although the foreign body had passed directly through it. On examination on the day of the injury there was considerable loss of vision; the point of entrance and the course of the body could be demonstrated; the eye pained but little, was slightly red and the pupil did not respond readily to light; the blood in the vitreous somewhat obscured the point of lodgment in the fundus. The pupil dilated readily; the inflammation quieted and there was very little discomfort during the two weeks which he remained in the hospital. June 2, 1893. Has recently had some neuralgic pain in the injured eye, which has gradually grown blind and he can not on this date see anything but shadows. The ophthalmoscopic examination shows the pupil slightly dilated and regular. An extensive retinal detachment around the point where the foreign body had lodged; a line of opacity through lens indicating the course of the foreign body. The pain in the eye and the complete loss of vision has occurred durring the last three weeks, the eye having been comfortable previous to this date. Enucleation was advised. The vision in the left eye is 20-15, but he states that he has difficulty in locating obiects and thinks he can not see as well as he could with the left eye before three weeks ago when the pain and loss of vision occurred in the injured eye.

THE RESULTS OF THE USE OF THE ELECTRO-MAGNET FOR THE EXTRACTION OF FOREIGN BODIES FROM THE EYE, WITH A REPORT OF TEN CASES.

Read in the Section on Ophthalmology, at the Forty-fourth Annual Meeting of the American Medical Association.

BY C. BARCK, M.D.

ST. LOUIS.

In the history of the use of the magnet on the eye we can distinguish two phases: 1, the use of the common magnet; 2, of the electro-magnet. The first one dates back as far as two hundred and fifty years ago, when Dr. Fabry of Cologne, used a magnet to remove a piece of iron from the superficial layers of the cornea. In 1842 Dr. Meyer from Minden (Germany), used a magnet, carrying thirty-two pounds, to remove a piece of steel out of the interior through the scleral wound. The first one who made a section through the sclera in order to remove a piece of steel with a magnet from the vitreous was Dr. McKeown of Belfast in 1874. In 1875 Hirschberg of Berlin, made a similar trial without result. These are the instances of the use of the common magnet we find in literature.

The second phase begins with the construction and introduction of the electro-magnet by Hirschberg in 1879. Since this time its use has become universal and the literature on the subject quite extensive. In

the instrument made by McIntosh, although more neat than the ones I have seen abroad, I found it necessary to have the points made somewhat longer. The battery must be powerful enough to enable the magnet to carry at least half a pound, and lately even a much stronger current has been recommended.

The cases in which the use of the electro-magnet is indicated, can be divided in two categories according to the location of the foreign body in front or behind the posterior lens-capsule. Those of the first, comprising the minority of the cases, are and have been within our reach by the ordinary methods; removal with forceps or other instruments, iridectomy, extraction of the traumatic cataract enclosing the body. But the extraction with the electro-magnet is easier, more rapid and we can for instance remove foreign bodies situated upon or in the iris without mutilating this organ.

All the cases where the foreign body penetrated beyond the posterior lens-capsule, were formerly considered beyond the scope of conservative treatment. This is the special sphere of the electro-magnet. For the scleral incision I used at first Graefe's knife but prefer now a Beer's knife, which makes at once a section of the proper length. I thrust it directly through conjunctiva and sclera in the direction of the supposed location of the foreign body, making a kind of pathway in the vitreous too. The selection of the point of incision depends entirely on the calculated seat, on the determination of which I shall dwell later. The external muscles must of course be avoided. The loss of vitreous is exceedingly small, if there is no improper manipulation; frequently none at all. Hirschberg recommends chloroform-narcosis. I have operated in a number of instances under cocain and find it just as expedient as for cataract extraction, children excepted.

The results are divided by Hirschberg into:

1, Good results, with maintenance of good vision; 2, moderate results, some vision being saved; 3, preservation of the eyeball; 4, failures.

The result depends upon:

1, The size and weight of the foreign body; 2, its septic or aseptic condition; 3, the correct diagnosis as to the location.

Ad. 1.—The foreign body can be called small when its weight is below 30 mgrs. Here the removal even quite a time after the injury might be crowned with a good result. If of medium size, weighing between 30 and 150 mgrs., then a primary operation only, within the first twenty-four hours will be successful. If the weight of the entering body exceeds 150 mgrs., the damage done to the structures of the eye will be too extensive to save some vision; sometimes even the preservation of the eyeball is impossible.

Ad. 2.—If the foreign body has been septic, suppuration of the vitreous sets in within twenty-four to seventy-two hours after the injury and the operation can then of course not prevent the loss of the eye. The possibility of such a condition is an indication to operate as early as possible.

Ad. 3.—The diagnosis must ascertain the presence of a metallic body in the vitreous and furthermore if possible its location. This depends mainly on the transparency of the media, especially of the lens and this again on the time which has elapsed since the injury. In the rarer instances where the foreign body enters through the sclera so far æquatorial as not to injure the lens, it is of course less important. As long as the media are clear, we can diagnose after dilatation of the pupil, the foreign body and its seat with the ophthalmoscope.

A precise idea of the situation is most important. The advice to operate under guidance of the ophthalmoscope is correct theoretically but deficient practically. I had a small mirror made to fit into the head band for the otoscopic reflector but abandoned its use. In the calculation of the seat first the meridian is determined. Then the distance from the corneal margin is measured upon the basis: first, that the most extreme point of the fundus, we can see, is about 8 mm. distant from it; second, that every optic disc diameter corresponds to 1½ mm. Furthermore an examination with the perimeter serves to control the calculation. The scotoma, caused by the presence of the foreign body, is transferred to the retina according to the measurements laid down by Donders in Graefe's Archives (Vol. xxiii, 2, pp. 255).

It is different, if we see the cases for the first time some days after the injury when the lens has become more or less opaque. In moderate degrees we might still discern the deeper seated opacity, extravasation of blood or metallic reflex. After the lens has become totally cataractous this is impossible and our judgment of the probable seat rests then upon the anamnesis and especially the direction of the successive wounds in the cornea, iris, anterior and posterior lens capsule. The best results are obtained in cases which are operated upon within the first twenty-four hours. Moderate results are due partly to the injury done to the retina and choroid, especially where the foreign body happened to strike the region of the macula lutea, partly to opacities of the vitreous. Too much fishing in the vitreous with the magnet is always detrimental to the sight, causing shrinking of the vitreous and detachment of the retina. They are the cases of the third class, where the eyeball only is preserved. But even this result is a gain as many people regard the loss of an eyeball as a serious mutilation.

The failures are due to:

1, Too large a size of the entering body; 2, a septic condition of it; 3, the impossibility to remove the foreign body because the magnet did not find it or because it was too firmly imbedded in the walls of the fundus.

Eyes where operations in the vitreous have been performed should be kept under a close and long observation. Hirschberg rightly insists that no statement as to the final result ought to be accepted until at least one year after the operation has elapsed. I, therefore, report only my first ten cases, omitting three occurring during the last year. In two the foreign body was located in the anterior half of the eyeball.

Case 1.—M. B., 22 years old. Injured two days previously. In the left eye a fine scar in the cornea below and somewhat in the pupillary area. In the outer inferior quadrant of the iris, near to the pupillary margin, a small metallic body could be clearly recognized by focal illumination. It was imbedded in the tissue, a small portion of it projecting. Pupil irregularly contracted. Under cocain, corneal section downward and outward. The introduced magnet attracts the piece at once and brings it forth. After atropinization, the anterior lens capsule was found intact. Normal healing with a round movable pupil. Vision 20-30, owing to the cicatrix involving the pupil. Without the magnet this case would most probably have required an iridectomy.

Case 2.—L. O., 41 years old. Injury same morning. Right eye. Corneal cicatrix two lines long outward. Corresponding perforation visible in the iris. One-third of anterior

chamber filled with blood. After repeated use of atropin during two hours, pupil sufficiently dilated. A black dimly reflecting foreign body could be diagnosticated in the outer half of the crystalline lens. Expectative treatment during three weeks, after which time the lens was sufficiently opaque. Iridectomy upward and outward. The piece of steel follows easily the introduced magnet. Removal of the cataract as usual. Normal healing. Secondary cataract operation later. Final result, vision 20-70 with +11 .0D. In this case, the same result could have been attained by the ordinary method. The use of the magnet seemed to me of advantage.

In the other cases the foreign body entered the vitreous chamber. I shall give them in chronological order·

Case 3.—L. M., 30 years old. While striking the back of a hatchet with a hammer, the day before, a piece struck his right eye. Pain in the night. Eye moderately injected. In the upper outer quadrant of the cornea a linear cicatrix one-half line long. After atropinization, a corresponding wound in anterior lens capsule near the æquator was seen. The ophthalmoscope reveals, if the patient looks down, a roundish opacity in the vitreous with a metallic reflex from its center, apparently not far behind the posterior lens capsule. Fundus otherwise clear. Operation same day under cocain. Scleral section between superior and external rectus. On the third introduction of the magnet it brought forth a minute piece of iron. No loss of vitreous. Conjunctival suture. Healing process normal without pain and very little irritation. Vitreous at first cloudy, then clearing up. Traumatic cataract did not follow. Dismissed the 15th of December. No injection of eyeball. Vision = 20-40. On the place of the foreign body an irregular opacity of vitreous with corresponding narrowing of the visual field. Status the same two years later.

Case 4.—Young man from the country, seen in consultation with Dr. Williams of St. Louis. Chip of iron had entered the eye two weeks previously. Traumatic cataract. Fundus not visible. Scleral section between inferior and external rectus. The foreign body could not be found with the magnet. The eye was afterwards enucleated by Dr. Hotz of Chicago.

Case 5.—L. S., 27 years. Injury three hours previously while working on the rim of a barrel. Right eye. In the inner lower quadrant of the cornea a closed wound one line long. In the same direction in the iris an oblong perforation reaching close to the pupillary margin. Pupil dilated after one and a half hours. Wound in anterior as well as in posterior capsule and the way of the foreign body through the lens in form of an opaque streak clearly visible. In the vitreous near to the retina a gray-yellowish, sharp circumscribed opacity, the size of the optic disc. From the center, a metallic reflex. Operation same morning in narcosis. Incision with a Graefe's knife in inner lower quadrant 3mm. long. On the second introduction of the magnet the metallic body springs to it with a loud click and is easily extracted. Weight, 15 mgrs. Healing of the wound regular. The development of the traumatic cataract caused for a time glaucomatous symptoms. After its resorption the eye was found blind in consequence of detachment of the retina.

Case 6.—Young man, seen November, 1889. Injury three days previously. Corneal wound. Lens nearly totally opaque so that nothing of the fundus could be seen. In the grayish lens substance there is a sharply circumscribed black spot which looks like a foreign body. On the ground of the possibility of this location the section was made in the cornea. The introduced magnet proved the fallacy of this supposition and it was then introduced deeper through the lens into the vitreous. The foreign body could not be found. The patient did not return, and I do not know what became of him. The eye must of course be counted as lost.

I would like to mention here that a small oblong transparent portion in an otherwise opaque lens looks just like a foreign body, and is highly deceiving. The only difference is the presence or want of a metallic reflex. If this is wanting the location of the foreign body should always be supposed to be in the vitreous chamber and the scleral section ought to be made.

Case 7.—O. R., 40 years old. Right eye received injury seven days ago. Horizontal scar in upper inner quadrant of the cornea one and a half line long. Behind it, perforation of the iris. Lens nearly completely opaque, but the wound canal from anterior to posterior lens capsule and in a downward direction plainly visible. Farther back in the vitreous there is a dark spot with slightly metallic reflex just perceptible. Location of it impossible. Operation the next day under cocain. Owing to external circumstances I decided to remove in the same operation the cataract and entered therefore with the magnet, after a corneal section downward and extraction of the cataract through the pupil. I proceeded the same way in Case 9. But although the result in this case was favorable I can not recommend the procedure. It is much more difficult to manipulate with the magnet from a corneal than from a scleral incision, and the extraction of the cataract ought to be left to a subsequent operation. The foreign body was found after some searching on the bottom of the vitreous and removed. Weight, 10 mgrs. The healing process was a regular one with very slight symptoms of irritation. A discission of the capsular cataract on March 1, 1891, produced a round pupil in the center. Fundus clear; only fine opacities in vitreous. Vision = 20-40 with + 12.0D. Reads Snellen III with + 15.0. This status has been the same up to date. As the other eye of the patient had been considerably injured by a previous accident (vision only 20-200), this one enabled him since to do his work and earn his living.

Case 8.—R. L., aged 28. Injury received six weeks previously in the country. A large piece of iron from a chisel had entered the eye. Large cicatrix at cornea-scleral margin. Traumatic cataract. Iris dull and discolored. Chemosis. Swelling of the upper lid. The other eye injected; pronounced photophobia. As the patient was very anxious to have his eye saved, a last resort was made in spite of the symptoms of commencing sympathetic affection of the other eye. Scleral section. From the vitreous there was attracted at once a large piece of iron, necessitating enlargement of the wound in order to remove it. Weight 630 mgrs. There was some pus on its surface. On that account, and as the sympathetic symptoms rather increased, the shrunken eye was removed two days later. Under appropriate treatment the other eye recovered fully.

Case 9.—J. P., 52 years old. Piece of steel from a chisel entered the eye five days previously. Large irregular horizontal cicatrix in cornea not fully closed as yet. Anterior chamber shallow. Pupil dilates only partially from atropin. Lens opaque. Place on laceration in anterior and posterior capsule recognizable; no reflex from fundus. The foreign body had most probably caused a considerable hemorrhage. I deemed it best in this case to proceed as in Case 7, especially as the corneal wound had not united fully. I, therefore, reopened and enlarged it, removed the opaque lens masses, and entered with the magnet through the pupil. In spite of long searching the foreign body could not be found. The patient disappeared a few days afterwards.

Case 10.—J. D., 14 years old. A piece of steel from a plate, crushed by a large hammer, struck the right eye. Seen immediately after the injury. Corneal cicatrix in outer lower quadrant. Triangular wound in iris, which is slightly adherent to the cicatrix. After atropinization, wound in anterior and posterior lens capsule visible. Ophthalmoscope reveals at the bottom of the vitreous an opacity with metallic reflex. Fundus otherwise clear. Operation three hours after injury in narcosis. Scleral section between inferior and external rectus. The click on touching the foreign body was heard twice, but it followed the third introduction only, having probably been firmly sticking in the sclera with its very sharp end. Weight 10 mgrs. Loss of one drop of vitreous. Conjunctival suture. Healing process normal. Traumatic cataract left to absorption. Discission August, 1892. Vitreous considerably cloudy, especially in lower portion, and most probably retinal and choroidal atrophy. Counts fingers at 1½ meter distance. Status about the same now. It is doubtful if this moderate amount of vision will not become lost in the future.

The eight cases of extraction from the vitreous give the following results:

Two, good ones: 1, moderate one; 1, preservation of the eyeball; 4, failures.

The most extensive experience on this subject is possessed by Hirschberg, who reported (Graefe's Archives, 1890) a series of 100 consecutive cases from 1879–90. Among them in forty-one, the foreign body was situated in the vitreous chamber and his results were:

Four, good ones; 3, moderate ones; 6, preservations of the eyeball; 28, failures.

His failures were in a large percentage of the cases due to septic infection already existing at the time of the operation.

Another large collection of cases has been reported by Mayweg (Archives of Ophth., xxiii, p. 278). In fifty out of sixty-six the seat was in the vitreous chamber. His results were:

Nine, good ones; 7, moderate ones; 6, preservations of the eyeball; 22, failures.

In six the final result unknown. From the literature at my command, I could collect up to 1892 258 cases, including the above mentioned series. The results of these were:

Fifty-eight, good ones: 40, moderate ones; 37, preservations of the eyeball; 123, failures.

The pronounced difference between these statistical results and those of Hirschberg is striking, but easily to be accounted for. These cases have been reported by numerous different authors, one or a few at the time and many of them beyond doubt too early. Furthermore, good results are published, as in surgery generally, failures passed over in silence. Therefore but little value can be attached to such collected statistics, and in my opinion only a larger number by one operator, or series of such, can form the proper basis to guide us. If the results so far have not been brilliant they have nevertheless been encouraging and they will undoubtedly become better with our increased experience.

Dr. J. L. Thompson—The first paper was a very valuable one on the use of the electro-magnet for the purpose of extracting foreign bodies from the vitreous. As to the second one, concerning quiescent bodies, we should like to have heard the last of that paper; without that we can say very little about it. Patients should be repeatedly warned by their physicians as to the danger of these foreign bodies. Tell them of the danger of the foreign body setting up inflammation many years afterwards. In such cases I have always given Solon's advice to Cræsus: "Count no man happy until he is dead." There are some physicians who let the poor creatures go on with the injuries telling them: "Well, there is not much danger," until the patient goes on and loses the other eye. If the doctor had told him of the danger he would have been more practical and saved his eye.

Dr. Baker— I had the pleasure in 1882 of spending some months with Prof. Hirschberg in Berlin and seeing him make several attempts at extraction of foreign bodies from the eyeball with an electro-magnet. On my return home in 1883 I had a magnet made, an improvement on his, in that it would lift five or six pounds while his would lift only ten or fifteen ounces. We have in Cleveland, as in all manufacturing centers, a number of penetrating wounds of the eyeball. It is always a difficult problem to know how to treat these cases, and the electro-magnet has been of much value to me in making a diagnosis. In a few cases it has proved of great service in the removal of fragments of iron or steel from the interior of the eyeball.

I recall one case referred to me by the late Dr. Weed in which he supposed the injury was only conjunctival and put a stitch in it; there was hemorrhage in the anterior chamber which obstructed the view with the ophthalmoscope. As soon as I brought the electro-magnet near the eyeball I knew there was a foreign body in it by the way in which the ball followed the magnet, and the pain complained of by the patient. I opened the wound and by the aid of the magnet soon found and removed the piece of steel, which was about the size of my little finger nail. The man is still carrying the eye without any vision, but it looks as well as the other. In another case I could see a piece of something, not much larger than a pin head, very distinctly in the center of the vitreous. I made an opening in the chamber opposite and inserted my magnet repeatedly. I could hear the click of the instrument against the foreign body but it would not come out. I kept this up for a long time but could not get it. After consulting with the patient we decided the eye must come out. I enucleated the eye and upon opening it took the magnet and placed it in contact with the foreign body but could not extricate it. I could lift the entire eyeball with this piece of steel adhering to the magnet, and yet it would not separate from the vitreous. The inflammatory capsule held this piece of steel there. Could I have permitted that foreign body to remain without harm? I had another case not very long ago who had a piece of steel in his eye eight years; after that long time of quiescence it set up sympathetic inflammation and caused the loss of the fellow eye. I do not like the term, "quiescent foreign bodies in the eye." I do not think it best to convey the idea to the mind of the general practitioner that he can safely leave these foreign bodies in the eye. It might do if we could have them under our own control, but it is not well for us to let patients go from under our care with these foreign bodies in their eyes.

Dr. Murrell—I had occasion to present a paper last year on the subject of sympathetic troubles and how to deal with them. In reference to the first paper I will say that my experience with the electro-magnet has not been satisfactory. I have tried it in a few instances and have always failed to save the eye. The foreign body is usually tangled up in the fibers of the vitreous. I have had two or three typical cases and in each have failed and had to remove the eye afterwards. In reference to quiescent bodies in the eye, I think it is a very dangerous thing to leave them in position. Of course, we know that injuries in uveal tract are most liable to give rise to sympathetic trouble, but even in the vitreous humor there is danger of sympathetic trouble following if the foreign body can not be removed from the eye. I have seen a number of cases where foreign bodies have been carried a number of years and then have sympathetic inflammation set up in the other eye. I treated an eye with a piece of glass in it that had been carried for ten years. The piece of glass measured more than half an inch and had very sharp edges; sharp enough to cut. It had cut transversely through the cornea into the sclera about four millimeters on either side. It was evidently in the ciliary body, yet it was carried ten years without the slightest trouble. However, I advised the removal of the eye because the patient was blind and as a safeguard. On opening the eye I found the piece of glass. As Dr. Thompson has said, the patient was better without the eye, in his judgment, than to run the risk of carrying it.

Dr. Jackson—The case reported by Dr. Baker in this discussion brings out a feature I do not remember to have seen mentioned, as to the use of the magnet in extracting foreign bodies from the vitreous. A foreign body can be dragged through the vitreous with very great difficulty or not at all by the magnet, unless you drag it through the wound of entrance. In one case I saw the patient thirty-six hours after the foreign body (quite a small particle of steel) entered the eye. The wound of entrance being small and the foreign body lodged on the other side of the eye a wound was made at the outer side of the vitreous chamber. Inserting the magnet, which was working well, it was tried repeatedly to drag the body out. The instrument would come in contact with the foreign body but it was impossible to dislodge it. So in Dr. Baker's case he tells me he had

made a new wound of entrance through which he introduced the magnet, and not through the wound made by the foreign body. This perhaps has been more frequently the cause of failure than has been noted. I think it much safer to have the foreign body out of the eye, if possible, but the large majority of these cases that do well after the magnet extraction are probably cases which might have done well had the foreign body remained in the eye.

DR. ALLPORT—In regard to the use of the electro-magnet my experience has been rather unfortunate. I have upon several occasions extracted foreign bodies from the interior of the globe by the use of the magnet, but have subsequently lost the eye. The intra-ocular manipulation of the instrument has seemed to be more than the eye could endure. I would not, however, condemn the use of the magnet. Good results are reported and I may have been unskillful in the operation. It should certainly be used in superficial lodgment of foreign bodies that are beyond reach by other methods. But I should have to be absolutely *sure* of the presence of a foreign body inside the eyeball to make any more experimental intra-ocular searchings with an electro-magnet.

In regard to quiescent foreign bodies in the eye I feel convinced that there is no safety while a foreign body is in the eye, and that if its extraction is impossible the eye should be removed. There are eyes that carry foreign bodies for years and thus produce a loss of both eyes. It is not conservative practice to allow patients to take such chances. These patients are usually laboring people of a low order of intelligence, and are apt to wander from one part of the country to the other. A sympathetic inflammation is liable to occur at any time under the most adverse circumstances as to skilled surgical attendance, etc. The loss of one or both eyes will be the probable result. We should do our duty and advise the enucleation of an eye, when we are sure of the presence of a foreign body before the patient passes from under our observation. In this connection let me advise some concerted action with regard to enforcing legislation calculated to prohibit the manufacture and sale of toy guns and pistols. In the month of June I was compelled to remove no less than three eyes from children who had been playing with these mischievous playthings. During the same month a medical friend of mine in Winona, Minn., was forced to mourn the loss of a young son, killed while playing with one of these dangerous instruments. If our wise legislators could drop for a time the discussion of such burning subjects as the smoking of cigarettes, the draping of nude statues, the covering of similar pictures, and the wearing of hoopskirts, and direct their attention to the advisability of permitting the manufacture and sale of toy guns and pistols, they would fill a longfelt want.

DR. FROTHINGHAM—I wish to discuss briefly two points that have been presented. The first is a statement that has been made by a previous speaker, that if a foreign body has entered the eye and we can not remove it we should enucleate the eye at once without regard to other conditions. I do not think experience warrants so "hard and fast" a rule as that. While in the great majority of cases enucleation will be necessary sooner or later, we should not decide the question of enucleation alone upon the fact that a foreign body is lodged within the eye, but upon the amount of injury and the reaction that follows; that is, upon the symptoms of an inflammatory nature in the injured eye that indicate danger to the other eye through sympathy. We all know that foreign bodies may remain in the eye for years without causing any feeling of discomfort or endangering the other eye. I once had a patient, an aged gentleman, who suffered from senile cataract. Many years before, while he was a young man, he had a piece of steel enter the eye and lodge in the upper portion of the iris, where it had become encysted, and after a brief period of irritation had never troubled him in the least, and the vision had remained perfect until the senile cataract commenced to form. As the cataract was mature in this eye I operated, and in removing the usual section of the iris I removed the foreign body also. There are many instances where foreign bodies have remained in the deeper structures for many years without producing any symptoms that indicate enucleation of the injured eye. I had a patient a young man, suffering with pain in a blind eye, and sympathetic irritation of the other. The painful eye had been blind from childhood, but until a short time before consulting me it had caused him no discomfort. There was an injury of the iris, an absence of the lens, and a small scar of the cornea which indicated that a foreign body had penetrated the eye long before. He was then twenty-six years of age and said he had never received any injury of the kind. The eye was enucleated and a small piece of steel was found lodged upon the inner surface of the sclerotic. The patient afterwards recalled the fact that when a small boy, about six years of age, he was watching some men while they were drilling a stone, and that something struck him in the eye causing pain. This was a case where a foreign body had penetrated the eye, and yet, not until about twenty years afterward did it give rise to symptoms that called for its enucleation. This patient made a perfect recovery. Now there are a sufficient number of similar cases on record to forbid our acceptance of a rule that we should enucleate an eye at once if a foreign body has entered it, and we can not remove that body. If all symptoms of irritation speedily subside and there is no recurrence of pain or feeling of discomfort in the injured eye and the other is unaffected in any way we are justified in waiting, and under certain circumstances should wait until symptoms of pain and irritation recur in the injured eye and indicate danger to the other through sympathy. We should never allow a patient to go without warning, and should fully impress him with the danger of delay after symptoms of irritation recur in the injured eye, and in all cases where the recovery from the effect of the injury is not steady, and of short duration, we should enucleate.

I remember a case something like this one reported by Dr. Baker: the patient, a man of intelligence, had a small bit of steel penetrate his eye a few months before I saw him. The vision of the eye was not greatly impaired and there was on first examination but little indication of irritation or danger to the other eye, and I thought the patient was perhaps unduly alarmed; I hesitated to sacrifice an eye that possessed so good vision until thoroughly satisfied that it was necessary. Upon ophthalmoscopic examination the position of the foreign body could be plainly made out in the posterior portion of the vitreous humor, where it seemed suspended and surrounded by a thin film of semi-transparent tissue. I kept the patient under observation in the hospital, and finding that there were well marked symptoms of irritation at times which prevented his use of the other eye I decided to make an attempt to remove the foreign body, and failing in this to enucleate the eye. Having the patient's consent, I had him put under the influence of an anesthetic, and making the usual incision tried with a powerful magnet to extract the foreign body but without success. I then enucleated the eye which I opened; with the foreign body plainly in view and the magnet brought as close as could be I was unable to move it, although there seemed but a slight change in the vitreous surrounding the metal.

DR. LEMOND—I do not think there is anything more in

keeping with conservative ophthalmology than to enucleate the eyeball if any sympathetic irritation is present. A few days ago at my home in Denver on the day I was preparing to start for Milwaukee, a gentleman came to my office who had an injured eye. The ocular injection was very great and inflammatory action had gone to a considerable extent. The well eye I noticed, on examination, was wanting quite a little in power to accommodate. He said to me: "I came to get some medicine for my eye." I examined it carefully and found that it had been caused by the introduction of a foreign body. I told him he was running a considerable risk in allowing the affected eye to remain in its orbit and assured him that he had a sympathetic irritation in the well eye, which was likely to produce total blindness unless attended to at once. The affected eye looked phthisical, was minus tension and the vision was entirely gone. I said: "I will enucleate the eye for you, if you want it done, otherwise I will do nothing." He went away but soon returned and informed me that he would take my advice and have the operation performed. On opening it I found the remains of a foreign body.

About three years ago lady came to my office and said: "Doctor, I have come to get something to allay this inflammation in my eye." It had never given her such trouble before. It was brought about by the introduction of a small piece of thorn having pierced the ciliary body. I told her I would enucleate the eye by all means, as she was beginning also to have sympathetic trouble in the well eye, and that I could not be honest in advising her to try to hold on to the injured eye longer, as it would be running a risk that I would not carry for a thousand dollars a day. She refused to abide by my advice and went away and the sequelæ will tell the result: in three months she returned, and I found that the injured eye had recovered, to a great extent, from the introduction of the foreign body, but on examining the other eye, alas! I found it too was in total darkness. Had I advised this woman at her first visit to me to have pursued the course she did, my conscience would haunt me to this very hour for not doing my duty. I do not say to do a wholesale enucleation for every foreign body—far from this; if sympathetic inflammation has manifested its presence I never fail to advise enucleation, and I have got the first case to regret for having taken such a course. I do not think we act wisely by attempting to carry these risks. This case is only one of a dozen or more that has come under my own observation with like results.

Dr. Hotz—called attention to the fact that prognostically it made a vast difference whether the foreign body in the eyeball was lodged in the vitreous, or in the lens, or in the iris. General statements therefore on foreign bodies in the eye without mentioning the location must be misleading; for instance, when a gentleman said it was his rule to take any eye out in which he found a foreign body, he certainly did not wish us to believe he would enucleate eyes having a foreign body in the iris or lens; for these foreign bodies may be either left in situ or can successfully be removed and the eyeball saved. But conservative treatment can not be recommended for foreign bodies in the vitreous. The experience of all oculists, at all times, has been that foreign bodies in the vitreous are a prolific source of sympathetic inflammation. Such eyes are a constant menace to their fellows and should be removed; for we have no right to jeopardize the sight of thousands of eyes by a conservative treatment, because in some rare exceptions it has proved satisfactory. We must not be guided in our actions by what our experience of every day shows to be the usual course with such patients.

Prof. Zehendor (by invitation of the chairman) called attention to the experiments of Kries and Haab with electro-magnets of unequal strength for the extraction of iron and steel from the eye without entering the eyeball, but by magnetic traction through the tunics. He has observed two cases operated on in this manner by Dr. Schloesser of Munich. In both cases the *extraction* of the iron piece succeeded very well and quite easily, but in one of these cases the piece was so big, that in spite of the extraction the eye was destroyed. He also related an instance in his experience in which he observed at the time the entrance of a foreign body into the interior of the eye in a boy, which was followed by retinal detachment and atrophy of that eyeball, but had not caused any sympathetic trouble in the fellow eye up to the time of his death sixteen years later.

THE ACTION AND SAFETY OF CHLOROFORM.

Being an abstract of a report to Surgeon Lieutenant Colonel Edward Lawrie and the Government of His Highness, the Nizam of Hyderabad, India.

BY H. A. HARE, M.D.
PROFESSOR OF THERAPEUTICS AND MATERIA MEDICA, JEFFERSON MEDICAL COLLEGE, PHILADELPHIA,
AND E. Q. THORNTON, M.D.
DEMONSTRATOR OF THERAPEUTICS.

To any one who endeavors to view the subject of chloroform anesthesia in an entirely impartial light, two objects raise themselves so high above all others that they form the peaks about which the smaller questions must cluster. The first object on which the judicial eye rests is the firm belief of many clinicians that chloroform may cause sudden cardiac death; the second object to be seen is the statement of the Hyderabad Chloroform Commissions that death from chloroform is never due to cardiac failure. In the support of the first belief we have not only wide clinical observation but also the experimental evidences of a number of investigations. In support of the second statement we have an array of experimental study, not equaled by any other research extant, associated with an enormous number of negative observations on man. Negative observations, because Lawrie alone in 25,000 cases has never had a death.

The controversy concerning the action of chloroform upon the animal organism has been waged so incessantly for many years, and has led to such extraordinary efforts for its elucidation and final decision that any one who attempts to take part finds himself swamped by the number of statements and opinions which he is forced to regard. We have, therefore, approached this research feeling it was no ordinary task, and that a path already so well traveled must be gone over with the utmost care if anything new or of value was to be discovered.

In March, 1892, Surgeon Lieut.-Col. Lawrie, whose interest in this subject is recognized by the medical profession the world over, wrote to one of us (Hare) asking that another chloroform research be instituted for which the Government of his Highness the Nizam of Hyderabad would pay. The express object of the research was the reconciliation of at least some of the contradictory conclusions reached by various experimenters during the past few years.

From the immense number of observations in regard to the action of chloroform in the laboratory and in the operating room it is evident that sufficient data are at hand to give us material to reach positive conclusions, and that the contradictory results hitherto obtained must have been reached by misinterpretation and error in experimental method, tinctured perhaps by opinions formed previous to

the completion of a line of study. There are certain facts in regard to chloroform which few will deny, the chief of which are that it has the advantage of rapid action without disagreeable preliminary or subsequent symptoms, its bulk is small and its odor agreeable but, more important than all, it is much more dangerous than ether.

Though the Hyderabad Commission in their preliminary conclusions (page 30, paragraph 43) assert that ether is as dangerous as chloroform if given sufficiently to produce true anesthesia, we believe that the safety of ether is so universally recognized that this conclusion of the Commission can only be excused by the remembrance that ether has probably been used as little by those who wrote this paragraph as chloroform is used in many parts of America. This possibility is made a probability when we read that "if surgeons choose to be content with a condition of semi-anesthesia, it can no doubt be produced with perfect safety, though with discomfort to the patient, by ether held rather closely over the mouth. Such a condition of imperfect anesthesia would never be accepted by any surgeon accustomed to operated under chloroform." That this statement shows, to put it mildly, that the writer knows not whereof he speaks is proved by the universal employment of ether by hundreds of the best surgeons the world over in preference to chloroform. Further than this, medical literature contains so many statistical papers showing the small percentage of deaths from ether, compared to chloroform, that this point need not be discussed.

There are certain other points in regard to the action of chloroform which may be put aside as settled and therefore not needing further study, being generally received as beyond criticism, and we have made no experiments looking to their reproduction but have devoted our efforts solely to the question over which discussion still proceeds. Thus, all investigators concur in the statement that chloroform even in ordinary therapeutic quantity, acts as a powerful and constant depressant to arterial pressure. This conclusion has been reached by Bowditch, Minot and Coats, H. C. Wood and H. A. Hare, Gaskell and Shore, the Hyderabad Commission Nos. 1 and 2 and by every experiment in the research now carried out which forms this report. There is no evidence to the contrary and practically it has never been denied. Gaskell and Shore state, however, that chloroform may cause anesthesia without lowering blood pressure and that chloroform causes primarily a rise of pressure. They also believe that the chief cause in the fall of arterial pressure is cardiac and not vasomotor depression. The rise we have never seen except from struggles, and we have never been able to produce anesthesia without lowering the blood pressure, even when the drug was used in the smallest quantity capable of causing anesthesia and given as slowly as possible. We agree with the statement of the Hyderabad Commission that a fall of blood pressure always occurs when chloroform anesthesia is produced.

We are also forced, as the result of our studies, to differ entirely with Gaskell and Shore in their statement that the fall of arterial pressure is due primarily to a weakening of the heart's action and not to paralysis (depression?) of the vasomotor nerves. We believe that both factors cause the fall, but that the dominant factor is vasomotor depression because as will be seen in several of our tracings the pulse waves were quite strong though the blood pressure, through vasomotor relaxation, was absolutely to the abscissa line and we agree with Lawrie that no conclusions as to the action of chloroform when inhaled can be drawn from the injection experiments of Gaskell and Shore into the arteries. One of our reasons for this belief is the entire difference in result. Another reason is that any powerful drug injected into the brain will cause a rise of blood pressure. Even nitrite of amyl, the prince of vasomotor paralyzants, will do this. (See Gaskell and Shore 17, paragraph 68). We also believe that results obtained by such interesting methods of experimentation as those employed by Gaskell and Shore are not capable of giving positively reliable information, as the conditions are so utterly at variance with those in which chloroform is given to man and, further than this, their methods are such as to give room for fallacious results which can not be excluded by the greatest caution on the part of experimenters experienced as they are.

Secondly, it is not denied by any one, that we know of, that chloroform exerts a powerful, depressant, paralyzant action on the respiratory center. This is agreed to by clinicians and by every one who has experimentally studied the action of the drug on the lower animals.

Thirdly, it is universally conceded that chloroform is a lethal agent of great power when brought in direct contact with highly vitalized tissues. Aside from these facts there are a number of others in which we find ourselves strictly in accord with the conclusions of the first and second Hyderabad Commissions.

We find when the drug is pushed that insensibility comes first, then respiratory failure and finally cardiac arrest in every case in the lower animals. In other words, that cardiac arrest never ensues primarily from inhalation of chloroform.[1]

SUMMARY.

From a careful study of the experiments so far reported, from studies made by one of us two years ago with H. C. Wood, and finally from this careful series of experiments we believe that the subject can be settled by the acceptance of both views in a modified form, or in other words that there is no real antagonism in the beliefs that chloroform kills by depression of the respiration or paralysis of the heart. We very positively assert that chloroform practically always kills by failure of respiration when administered by inhalation, provided, and this provision is most important, that the heart of the anesthetized is healthy and has not been rendered functionally incompetent by fright or violent struggles or, again, by marked asphyxia. By a healthy heart we mean one which has not undergone true fatty degeneration or has not so severe a valvular lesion as to make the slightest variation in the even tenor of the circulation fatal.

As positively as we assert that chloroform kills primarily by respiratory failure, so do we also assert that in excessive dose by inhalation it has a depressant effect on the circulation which is chiefly due to centric vasomotor depression with final depression

[1] Lack of space prevents the inclusion of three experimental records. They can be found in the issue of the Therapeutic Gazette for Oct. 15, 1893.

of the cardiac muscle itself. Depression of the cardiac muscle alone is never great enough to cause death when the chloroform is given by inhalation, but we believe that gradual asphyxia with the direct depression of the circulation may do much towards producing a fatal result, for vasomotor integrity is almost as necessary to life as an intact cardiac mechanism. This circulatory depression has been considered a safeguard because it was supposed to prevent chloroform going to the vital centers, but in reality it is no safeguard because profound circulatory depression is as great an evil as respiratory narcosis. That the circulatory depression may be dangerous is not only evident, but it is stated to be so by the Hyderabad Commission itself at the end of paragraph No. 8. This circulatory depression may be so profound that recovery is impossible, even with the most thorough artificial respiration, a fact stated by the second Hyderabad Commission in paragraph 25, which we quote in this paper. This emphasizes the fact that we can not afford to totally ignore the effect of chloroform on the circulation and we can not consider the patient in danger of circulatory failure *only* when the respiration *ceases, but as soon as it becomes abnormal.* On the other hand, we should remember that even if chloroform has been given properly, the arterial pressure may be so low as to give no pulse in the radial artery and yet the circulatory system be ready to respond at once when the drug is removed. If, therefore, the chloroform is properly administered is there danger of its circulatory effect in man? We think that it is just at this point that our research and every other research on animals fails and necessarily fails, to produce a positive reply. The variation in the action of a drug on a diseased individual from its effect on the normal one is notorious, and we have no right to dogmatically assert that there is absolutely no danger of a circulatory depression in man, even if we found no evidence of failure in dogs, because there may be many idiosyncrasies or variations through disease in the human being which may completely reverse the results of experiments on healthy animals.

In other words, supposing that the amount of depression from very full doses of chloroform equals 25 units this amounts to little in the normal heart, but if the heart be depressed 25 additional units by disease the depression of 50 units may be fatal, particularly if to this 50 is added 25 units more of depression through fright and cardiac engorgement through disordered respiration or struggling. That true depression of the heart muscle may take place under chloroform seems to us most undoubted and we think that the tracings in every research that we have seen support this view. There is always a decrease in cardiac power manifested by the decrease in the force of the individual pulse beat and this passes away only if chloroform is removed early enough. We also agree with McWilliams that from the very first inhalation of chloroform there is a constant tendency to cardiac dilatation.

We come finally to the all important questions:

1.—Is chloroform a safe anesthetic?

2.—Are we to watch the pulse or respiration during the use of the drug, and what are the signs in the respiratory function indicative of danger to the patient?

3.—What is the true cause of death from chloroform?

4.—Is death from chloroform possible when it is properly administered?

5.—Under what circumstances is the surgeon to use chloroform in preference to the less dangerous anesthetic, ether?

6.—What is the best way of administering chloroform?

To the first question the answer is yes, for the majority of cases, provided it is given by one who is skilled in its use and not only knows how to give it but to detect signs of danger. It is not as safe as ether at any time, other things being equal, and never safe in the hands of a tyro.

To the second question the answer is, watch the respiration, *because as soon as enough chloroform is used to endanger the circulation the respiration will show some signs of abnormality either in depth, shallowness or irregularity.* In other words, the very effect of the drug may be to cause such deep and rapid respirations that an excessive quantity of the drug is taken into the lungs and continues to be absorbed even after the inhaler is withdrawn.

As there is always a fall in pressure under chloroform it is difficult to feel the radial or temporal pulse and the respiratory center recognizes the degree of arterial depression, which its sister vasomotor center has permitted by finding that its blood supply is insufficient. As respiration fails first it should be watched first. Finally, it is only by watching the respiration that we can tell how much chloroform the patient is getting. We do not watch this function for danger alone but to tell us of the dose.

The answer to question three is that death is always due in healthy animals to respiratory failure accompanied by circulatory depression, which latter may be severe enough to cause death even if artificial respiration is used skillfully. Death only occurs in the healthy animal when chloroform is given in excessive quantities.

Question four is impossible to answer for man from the basis of experimentation, as we can not produce identical diseased states in animals with those developed under various conditions in man. The physician having a case of heart disease should always advise the patient of the danger of any anesthetic and he should remember, whether it is wise to tell the patient or not, that anesthesia always means a step toward death even in the healthiest of men. In the event of a death under chloroform the physician is not to blame if he has taken proper preliminary precautions and given the chloroform properly.

Every one is agreed that the patient taking chloroform should have plenty of fresh air and in India we understand that to all intents and purposes patients are operated on in the open air, at least as compared to the closed rooms necessary in America and Europe. This free supply of air is important, whether we believe death to be imminent from cardiac or respiratory failure, but this supply of air matters little to the patient if he does not breathe freely nor does the dose of chloroform amount to aught if it is not drawn into the chest. The dose of chloroform is not the amount in the inhaler but the amount taken into the chest and finally the amount absorbed by the blood vessels. The rapidity and depth of respiratory movements is therefore, as Lawrie asserts, the entire key to the situation. We watch a windmill over a well to see if it is pumping into a reservoir a given quantity of water. If the

windmill works irregularly so that we know its pumping action is deranged we separate it from the pump until the wind blows steadily, in order that it may pump regularly. Similarly we withdraw chloroform, as Lawrie says, whenever respiration becomes disturbed in rhythm or when struggling disturbs it, because it is the first indication that the drug's action is uncertain and because there is no telling the dose which is absorbed. While watching the respiration will not warn us of a sudden cardiac arrest in fatty heart plus chloroform depression, neither will the pulse give us such warning and we are confident that the statement of the Hyderabad Commission that the *respiration should be watched is correct*, for we believe from a long series of observations that gradual cardiac failure never occurs without producing respiratory changes from the very first. In other words, we do not believe that in a healthy heart chloroform can cause serious disorder without as a result of beginning disorder disturbing respiration and, second, that in a healthy heart a quantity of chloroform sufficient to disorder it will by its direct action disorder the respiration. If, as an extra precaution, one assistant watches the pulse while the other watches the respiration, very well; for though the respiration is the more important function the man watching the pulse might discover an irregularity which the anesthetizer may not see reproduced in the respiratory action, but as divided attention generally means a slighting of both objects in view Lawrie is right in insisting on the pulse being let alone.

In answer to question five we have several points to offer: 1. Hot climates where ether is inapplicable and where a free circulation of air increases the safety of the patient; 2. Chloroform may be used whenever a large number of persons are to be rapidly anesthetized so that the surgeon may pass on to others and save a majority of lives, even if the drug endangers a few, as on the battlefield where only a small bulk of anesthetics can be carried; 3. Its employment is indicated in cases of Bright's disease requiring the surgeon's attention, owing to the fact that anesthesia may be obtained with so little chloroform that the kidneys are not irritated, whereas, ether, because of the large quantity necessarily used, would irritate these organs. Quantity for quantity, ether is, of course, the less irritating of the two; 4. In cases of aneurism, or great atheroma of the blood vessels, where the shock of an operation without anesthesia would be a greater danger than the use of the anesthetic, chloroform is to be employed, since the greater struggles caused by ether and the stimulating effect which it has on the circulation and blood pressure might cause vascular rupture; 5. In children or adults who already have bronchitis, or who are known to bear ether badly or, in other words, have an idiosyncrasy to that drug, chloroform may be employed; 6. Persons who struggle violently and who are robust and strong are in greater danger from the use of chloroform than the sickly and weak, probably because the struggles strain the heart and tend to dilate its walls.

The safest method of administration is by Lawrie's or Esmarch's inhaler because these provide free circulation of air and do not distract the attention of the anesthetizer from the respiratory movement by complicated apparatus. Apparatus much like these in allowing a free amount of air, are the Hyderabad chloroform inhaler, or open-ended cone with Krohne and Seseman's respiration indicator attachment. The Junker inhaler, even with its modifications, is too complicated and cumbersome and while less chloroform is wasted in administering the drug it must all be thrown out of the bottle afterwards. If used at all it should be used with the increased air supply and respiration indicator of Krohne and Seseman.

We agree so heartily with Lawrie's conclusions that we print them below:

1.—The chloroform should be given on absorbent cotton stitched in an open cone or cap. (A depression made through the opening in the inside flannel bag will answer as well.)

2.—To insure regular breathing, the patient lying down with everything loose about the neck, heart and abdomen, should be made to blow into the cone, held at a little distance from the face. The right distance throughout the inhalation is the nearest which does not cause struggling or choking or holding of the breath. Provided no choking or holding of the breath occurs, the cap should gradually be brought nearer to, and eventually may be held close over, the mouth and nose as insensibility deepens.

3.—The administrator's sole object while producing anesthesia is to keep the breathing regular. As long as the breathing is regular and the patient is not compelled to gasp in chloroform at an abnormal rate there is absolutely no danger whatever in pushing the anesthetic till full anesthesia is produced.

4.—Irregularity of the breathing is generally caused by insufficient air, which makes the patient struggle or choke or hold his breath. There is little or no tendency to either of those untoward events if sufficient air is given with the chloroform. If they do occur the cap must be removed, and the patient must be allowed to take a breath of fresh air before the administration is proceeded with.

5.—Full anesthesia is estimated by insensitiveness of the cornea. It is also indicated by stertorous breathing, or by complete relaxation of the muscles. Directly the cornea becomes insensitive, or the breathing becomes stertorous, the inhalation should be stopped. The breathing may become stertorous, while the cornea is still insensitive. The rule to stop the inhalation should, notwithstanding, be rigidly enforced and it will be found that the cornea always becomes insensitive within a few seconds afterwards. It is only necessary to add that the patient should be so dressed for an operation that his respiratory movements can be easily seen by the chloroformist. In the climate of India this is not difficult to manage, but it is rather more so in the climate of Europe; so that in this respect, and in this respect alone, the chloroformist in England and America is placed at a distinct disadvantage compared with the chloroformist in India.

NOTE.—Since writing this report two important papers upon this subject have appeared in the London *Lancet*. The one by Gaskell and Shore, in which they carried out a line of ingenious cross-circulation experiments, and from which they conclude that the fall in blood pressure seen under chloroform is due to cardiac rather than vasomotor depression; and another paper published by Lawrie, in the London *Lancet* for Feb. 11, 1893, in which he refutes the statements made by Gaskell and Shore, and details experiments which he believes combat those of the two investigators just named.

The concluding paragraph of Lawrie's latest contribution to the subject states the facts so clearly and is so in accord with what we have tried to set forth in our own report that we can not do better than quote the paragraph:

"The Hyderabad Commission's work proves that, while Syme's principles are right, there is no such thing as a safe method of chloroform administration. It is no longer a question of the superiority of the London method or of the Edinburgh method; absolute safety can be attained neither by watching the respiration nor the pulse for signs of danger—which are in either case proof of improper administration or of overdosing. Moreover, overdosing may take place whether the anesthetic is given on lint or on a towel, or on a cap such as we use, or with Junker's or Skinner's or any other form of apparatus. The all-important point is that the breathing shall never be interfered with in any way. Safety under chloroform can unquestionably be insured, but it can only be so by attending to regular natural breathing; and, whatever method is employed, no one can deny that it is the bounden duty of the chloroformist to maintain natural breathing throughout the whole period of administration. To maintain natural breathing requires careful training and considerable experience, but if those conditions be fulfilled it is impossible to produce anything with chloroform but anesthesia; and the Hyderabad Commission has shown that anesthesia alone is entirely free from risk," provided the drug is not pushed too far and that the patient is in ordinary health. We would prefer to make the last sentence read: "Anesthesia can be safely produced by chloroform."

SELECTIONS.

Summary of the Surgery of the Tendons.[1]—With Six Illustrations from Lejars.—By John B. Hamilton, M.D., LL.D., Chicago.

The Surgery of the Tendons is the somewhat ambitious title laid down on the program as the title of my paper, but as time has not permitted me to review the whole subject in extenso, I will ask you to excuse my shortcomings, while I give you a condensed statement that will probably need no further condensation at the hands of your secretary. After all, I think most of the ideas that are new, or even presented in new form, can be stated in very few words.

I will pass over lightly the literature of the tendons, although that is very extensive, not only in medical literature, but in general literature. From the time Achilles' mother, Thetis, dipped him in the Styx, to make him immortal, by grasping tightly the tendons that have since borne his name, down to the middle ages when ham-stringing an enemy was a pleasant pastime of the bold Barons, the tendons have had considerable prominence.

In the surgery of modern war, where the wounds are made by bullets and rarely by bayonet or saber, the tendons are rarely wounded, for the very obvious reason that bullet wounds in battle are received on the body in exact proportion to the exposed area.

In civil life, the tendons are subject to dislocations more frequently than to wounds.

These accidents, though attended by few pronounced symptoms, need careful attention.

Contusions and punctured wounds need but scanty reference; owing to the lack of vascularity, contusion of a tendon is difficult to produce. Punctured wounds, when produced by any instrument causing laceration of the tendon fibers, are usually accompanied by retraction of the cut fibers and local necrosis of the connective tissue filaments; when made by a cutting instrument held parallel with the fibers, the wound closes with great rapidity, first by swelling of adjacent fibers from limited congestion; and second, by direct adhesion. The tendon sheath, however, made up as it is of loosely united connective tissue, is exceedingly liable to infection, and tenonitis, so called, almost invariably runs its course in the tendon sheath. Notwithstanding the fact that longitudinal wounds or separations of the tendons heal with rapidity, yet the resulting cicatrix impairs the efficiency of the tendon for a longer or shorter period, according to the area involved. Sometimes this impairment amounts to total suspension of the functions of the members; and the practical deduction from this lesson is, that *in opening abscesses lying underneath a tendon, the incision should invariably be made at the side of the tendon; not through it.* This practical advice, I believe, is not generally adhered to in the cases of finger abscess, but it should be. In abscesses of the fingers the original point of infection is usually the periosteum; the pus seeking exit in the line of least resistance usually projects from under the tendon on either side, and if the tension be not relieved at this time the adjacent bone participates in the inflammation, and it too becomes necrosed.

Fig. 1. Tendon Suture of LeFort.

Fig. 2. Tendon Suture Wöflar. After Lejars.

Gig. 2. Suture of LeDentu.

It has been mentioned that the cicatrix impaired the functions of the tendon. Not only does this impairment occur but, owing to the feeble circulation of the tendon, the absorption of the redundant cicatricial tissue is slow, and sometimes the impairment is permanent. The sheath and the adjacent connective tissue being richer in blood vessels, not only accomplish repair sooner, but they more speedily remove the cicatrix.

Theories of repair of tendons after injuries have undergone the same successive changes as that of repair of wounds elsewhere. The theory of Hunter, that the elements of the blood were alone concerned in the repair of tendons, held sway until Bouvier in 1857 asserted that the tendon sheath by proliferation filled up the interspace between the ruptured ends. Henle, Robin, Adams, Paget, Brodhurst, adhered to the theory of repair by exudation and direct union of the

[1] Read at the Mitchell District Medical Society.

ruptured ends. Türcker, Donders, Virchow, Remak, Kölliker, Cornil and Ranvier have confirmed in the main the cellular theory of Bouvier by examination of cicatrices of tendons in man and animals and experimental tenotomies.

According to Krauss, who wrote a memoir on this subject in 1888, "the first alteration in the tendinous ends is like a degeneration; a shriveling at the center and a granular appearance of their protoplasm. But the principal modifications consist in a proliferation of the tendon cells, in which there is often observed the karyokinetic figures, and a corresponding enlargement of the fibrillar tissue. Afterwards the cells become round or angular and are prolonged from the fibrils, and the prolongations are found in the peri- or intra-muscular fascia."

Fig. 3. Suture by Anastomosis (Method of Schwartz). After Lejars.

We may conclude that repair is complete when the functions of the muscle are restored; but as the restoration of the tendon necessarily depends upon the length of the separation space, we must interfere if we desire to secure early union.

The question of suture of tendons is the one that most concerns the practitioner. Shall the ruptured tendon be sutured or left to nature?

Fig. 4. Method of Czerny. After Lejars.

Galen opposed the suturing of tendons, and so long as his authority remained undisputed, the interdict prevented it. The credit of the change is given to Avicenna, and since his day surgeons have vied with each other in producing new forms of sutures, both in material and manner of application. My distinguished colleague, Professor Nicholas Senn, has been engaged for some time past in an exhaustive research of the medical literature of intestinal sutures, and the fruits of that research will soon appear in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. From that learned and instructive paper it will appear that it is almost impossible at this day to devise a new form of suture. This, however, only further corroborates the keen suggestion of Aristotle, "that probably all art and all wisdom had once been fully explored and again forgotten."

Fig. 5. Suture by Anastomosis (Method of Tillaux and Duplay). After Lejars.

Not to take up your time with further historical allusions, I will only mention the sutures of LeFort, Wölfler, LeDentu, Tillaux, Duplay, Schwartz and Czerny.

The material most in favor at present is horsehair, and chromicized catgut. Subcutaneous wounds of the tendons do not require suture unless the distance between the ends be very great, but all open wounds severing tendons require that the tendon be sutured. The difficulty which has led to so many forms of suture is the separation of the fibers by reason of their retraction; a complete ligature of the tendon could only result in strangulation necrosis of the ends. The drawings herewith from Lejars give you a fair idea of the different methods. Of these, perhaps the most ingenious is that of Tillaux and Duplay, which consists in suture of the peripheral end of a cut tendon in a slot cut in an adjacent tendon. Finally, we have the proceeding of Czerny, by which a splicing is effected by transplantation. Transplantation of tendon sections has been made by Glück, Georges Assaki and Fargin. Chassaignac as long ago as 1853 had united a tendon to the skin, in a case of section of the flexors of the thumb and index finger, and by the tension on the cutaneous cicatrix to which the tendon was united had good motion of the thumb and finger.

Where the separation is of long duration, both proximal and distal ends must be freshened.

LUXATIONS.—Dislocations of the tendons are quite common, the most common being the dislocation of the long head of the biceps, from the bicipital groove of the humerus. This accident is so thoroughly described in most works on dislocations, I will not dwell upon it here. The dislocation of the peroneal tendons from their groove at the external malleolus has escaped very much notice in the systematic works on surgery. I have seen two examples of this dislocation within the past year. Both were employes of the C., B. & Q. R. R., and both were switchmen. The accident may be recognized by pain, inability to turn the foot outwardly without pain, and the tendon may be seen and felt resting on the external surface of the malleolus. One of my patients acquired the habit of throwing the tendon out of its groove at will, the operation itself being painless. The attempt to walk while the tendon was in this abnormal position was very painful. He could reduce the dislocation easily by manipulation. The action seems to be produced while the weight of the body is thrown on the ball of the foot, the foot being extended and slightly rolled toward the inner border. Once produced its recurrence is common. The accident is also alleged to have occurred to horseback riders.

The reduction of dislocation of the peroneal tendon is easily effected, but the difficulty is to retain it in position. Fixation by the Martin's bandage, incision and suture have each their advocates, and Madyl of Vienna deepened the malleolar groove with a chisel; in my own cases, the men being on the hospital list of the railroad company, declined to submit to an operation. There is a strong probability that suturing the peroneal tendon to that of the flexor longus policis, which is adjacent, might prevent its return, but the operation of Prof. Albert seems to fully meet the indications.—*St. Louis Medical Mirror, Sept., 1893.*

Trional.—Koppers (*Intern. Klin. Rund.*, 29, 30, 1893), observed the action of trional in twelve patients and arrived at the following conclusions: In most cases of simple insomnia, 15 grains sufficed to induce sleep within half an hour; 20 or 30 grains may be given if necessary, but with still larger doses the effect does not seem to increase proportionately. Where pain is present some, though not much, sleep results. Owing to the rapidity of its action trional is best taken at bedtime in some warm vehicle, such as milk or tea. The after effects consisted only in slight heaviness in the morning, owing, apparently, to the direct action of the drug upon the cortex of the brain, and some slowing of the heart's action. If necessary, it also can be administered per rectum, the action thereby not being lessened.—*British Medical Journal*, Sept. 9, 1893.

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SATURDAY, OCTOBER 14, 1893.

EXTRA-UTERINE PREGNANCY.

Nothing in surgery is more typical of the advances which modern science has made than is the treatment of extra-uterine pregnancy. Although the axiom that death was due to hemorrhage and that the bleeding vessel must be secured was laid down over a century ago, it was a half century before the precept became practice and not until the present time, following the teaching of MR. TAIT, has the practice received the sanction of the operators of the world. If there was nothing else of which he might be proud, the abdominal surgeon might well point to the life saving record in ectopic gestation.

Although the modern literature of the subject has assumed enormous proportions, beginning with the classical work of DR. PARRY in 1876, there are still many points on which there is by no means a consensus of opinion in the profession. In the first place, there is a division as to the possibility of an absolute diagnosis previous to rupture. The disease is simulated by so many conditions, that it is unwise to lay down a train of symptoms which shall be taken as convincing evidence of the existence of an ectopic pregnancy. So closely does miliary disease of the ovary simulate ectopic pregnancy that skilled observers, men of wide experience, have been misled. The so-called "classical symptoms" of extra-uterine pregnancy are all here—the absence of one or more monthly periods, followed by a hemorrhage from the uterus, the morning sickness, the boggy tumor in the ovarian region—all may be present in tuberculosis of the ovary and may easily deceive the physician into thinking the case one of misplaced pregnancy. Again, the seeming extra-uterine pregnancy proves at the operating table to be a Fallopian tube filled with pus and causing the pain and hemorrhage that have given rise to the mistaken diagnosis. A pedunculated fibroma lying to one side of the uterus may present close resemblance to the graver trouble, or a normal pregnancy in a thin-walled uterus may produce such symptoms as to render a positive diagnosis between the two conditions possible only after weeks of anxious waiting.

Men of the rare opportunities of study and the large experience of MR. TAIT and DR. JOSEPH PRICE confess that they have been misled repeatedly and are almost willing to say that a diagnosis prior to rupture is impossible.

MR. TAIT, in his monograph on ectopic pregnancy and pelvic hematocele, says:

"I have never but once been called upon to make an examination until the rupture had occurred, and in that case there was neither history or symptoms which enabled us to do more than determine that there was tubal occlusion; not, indeed until the rupture occurred and the abdomen was opened was a diagnosis possible. Under these circumstances I think I may be excused for maintaining a somewhat skeptical attitude concerning the correctness of the diagnoses of those gentlemen who speak so confidently of making certain diagnoses in cases of tubal pregnancy before the period of rupture, and who speak with equal confidence of curing the cases by a puncture, either simple, medicated or electrolytic."

DR. PRICE is even more positive in his opinion as to the difficulty, if not impossibility, of diagnosis previous to rupture. In a recent paper he says:

"*Exceptionally*, if *ever*, is the trouble recognized before rupture. The few cases recorded have all been by men with one experience, with very little knowledge of the murderous troubles found in the pelvis. A few surgeons, with an experience of nearly one hundred sections for ruptured tubal pregnancy, have never found one unruptured."[1]

In the face of all the evidence on the subject it would seem that the diagnosis that is reported as made before rupture, is rather the result of a happy chance than the outcome of knowledge and weighing of symptoms on the part of the attendant.

After rupture the diagnosis becomes easy, though rupture has many times been mistaken for an abortion by the attendant physician. The sudden collapse with all the signs present of internal hemorrhage and the agonizing pelvic pain present a picture to the mind so vivid as to make mistake impossible. A pelvic examination and the finding there of a boggy mass to one side of the uterus would settle the case beyond a doubt and one feels inclined to ask if, in those cases that have been mistaken for abortion, a sufficiently thorough examination had been made or if the doctor merely took the woman's statement that she was aborting.

Rupture takes place either into the peritoneal cavity or between the folds of the broad ligament. If into the peritoneal cavity the wretched mother rapidly succumbs to the loss of blood and the peculiar and excessive shock that follows the accident. Rarely, it happens that the rupture takes place into the broad ligament and the fetus, developing in its new position, goes on to term and dies, condemning its

[1] Medical and Surgical Reporter, Sept. 30, 1893.

bearer to invalidism and all the horrors of abscesses breaking into bowel or bladder and discharging the bones of her unfortunate offspring.

It would seem as if common sense would point out the treatment. In any such hemorrhage from another part of the body, the physician would scarcely do his duty did he not seek out the bleeding vessel and secure it; yet we find men advocating anything rather than the surgical treatment. Puncture of the sac, injections into it of lethal substances, and electricity have all had their supporters. These agents find their use only previous to rupture and the uncertainty of diagnosis, and the fact that even in the hands of experts they have failed to save the patient from an operation are a sufficient answer to their claims.

That cases have recovered without operation is no reason that the surgeon should shirk his duty. The moment rupture occurs, the abdomen should be opened and the hemorrhage stopped by the removal of its cause. In no event should the case be allowed to go on in the hope that the patient, by some providential agency, may survive. The dangers of the hemorrhage, with the peritonitis and septicemia that follow the accident are too great to be set aside.

An important point in the surgical treatment is whether, in a ruptured tubal pregnancy of one side, the other side should also be removed to prevent the recurrence of the accident. In a paper on "Repeated Extra-uterine Pregnancy," published in the JOURNAL for Sept. 16, 1893, DR. MCKELWAY reports a case where the patient, after providentially escaping an untreated tubal pregnancy of one side was seized nine months later by a similar accident on the remaining side, from which she escaped only after a prompt operation and heroic measures. In discussing the case the author says: "My study of this and other cases leads me to the conclusion that both tubes and ovaries should be invariably removed in every case of ectopic gestation." In view of the fact that the causes of a pregnancy in one tube may be present in the other, is it right that the woman should be exposed to the chances of a repetition of the accident. The question is one of great importance. It is possible that the accident may never recur and there are many instances where the patient has subsequently had normal pregnancies and remained healthy. To offset this are the cases where the second ectopic pregnancy has followed a normal pregnancy. In the discussion which followed the paper, the conservative ground was taken that the other side should not be removed unless there was evidence of existing disease. Removal of the sound side adds slightly to the risks of the operation by increasing the shock and prolonging the operation; but, in a patient already at death's door and where safety depends on a short, dextrous operation, these considerations weigh heavily. The question is one to which our operators with large experience should turn their attention, and it is for them to decide whether the chances of a presumably healthy tube being the site of a subsequent pregnancy are sufficiently great to call for the more severe procedure.

Another point is raised as to the treatment of the placenta in case the pregnancy is so far advanced as to render the removal of the entire sac impracticable or dangerous. Various plans of procedure have been devised. The sac has been stitched to the abdominal wound and drained; it has been sealed and left in situ to be absorbed—all with more or less good results. Sound surgical sense would teach that the safety of the patient lies in the complete removal of the sac wherever possible, and, with the agents at our command, heat and gauze packing, the hemorrhage can be controlled and the placenta removed in almost every instance with a prospect of safe recovery for the patient. Where it has grown so intimately to surrounding structures—often intestines and important viscera—it should be thoroughly cleansed by repeated washings with boiled pure water and hermetically sealed, in order that it may be digested and gradually absorbed with the least possible chance of septic decomposition.

A third question is whether, in case the patient survive a primary rupture the case shall be allowed to go on to viability of the child in order to save the life of the child. It is an obstetric maxim about which there is not the slightest cavil, that the mother's life is to be respected more than the child's, and it would seem that the added risk to the mother should weigh against the child's life and therefore the misplaced product of conception should be removed as early as it is discovered. Delays in this as in other matters are full of danger.

From the beginning to the end, extra-uterine pregnancy is full of danger. The sudden urgency of the accident, coming as it does without warning, makes it a matter of the greatest concern to the specialist and the general practitioner alike. In the majority of instances, the diagnosis must be made by the family physician, and the specialist comes in only to confirm the general practitioner's opinion and to perform the life saving operation.

"Tubal pregnancy is a grave, perilous trouble from the very instant of its inception, and from the instant of its first recognition there should be no suspension of the vigil over it. There is but one safe choice, and that is prompt removal when the accident is first recognized." Such are the words of a successful operator and they contain a truth that it were well to understand, and knowing to heed.

Blank applications for membership in the ASSOCIATION, at the JOURNAL office.

THE INTERNATIONAL PUBLIC HEALTH CONGRESS.

The meeting of the Public Health Congress this week constitutes one of the most interesting of the series of World's Fair International Medical Congresses. Interesting alike to the physician and the laity, the proceedings of the Health Congress are of value to all mankind. The cure of disease largely concerns the readers of the JOURNAL, but the prevention of disease appeals alike to all.

We are sure, therefore, that the address of PRESIDENT DURGIN which is printed exclusively in the JOURNAL, will be widely appreciated, not only on account of its intrinsic interest, but because the author as Chairman of the Board of Health of the city of Boston, for the past twenty years, has had exceptional advantages for the study and solution of most of the complicated questions of municipal sanitation, that are likely to interest health officers throughout the world.

The merging of the American Public Health Association with the International Congress of Public Health proved a wise measure, as the considerable number of papers on the program by foreign authors added much to the interest and success of the meeting.

That veteran of sanitary science, DR. JOHN H. RAUCH, was Chairman of the Committee of Arrangements, and he was ably seconded by DR. M. R. BREWER, the Secretary of the Committee.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

This organization has been in session during the past week in connection with the International Sanitary Congress, as will be seen elsewhere in the columns of the JOURNAL. It has arrived at its majority. This is its twenty-first annual meeting. The necessity for such an Association was felt immediately after the war by those who had been trained in the military service and had subsequently been called to act as health officials in a civil capacity. The war demonstrated the importance of preventive medicine. A fighting force has to be kept in fighting condition.

Textbooks on sanitary science were few, and the best of them were not adapted to the civic health officer. Each such health officer practically was acting independently. The necessity for bringing together, in one body, those interested in sanitary matters, for the purpose of inaugurating measures for the restriction and prevention of contagious diseases and for the diffusion of sanitary knowledge among the people, was so apparent that after several years of conference and correspondence the Association was formed in the fall of 1872.

The only attempt at organization prior to this was the quarantine convention, composed of representatives from the cities of Baltimore, Philadelphia, New York and Boston. DR. WILSON H. JEWELL of Philadelphia, was the leading spirit in this movement. This was at the time when quarantine was the only preventive measure used to combat foreign pestilence. This convention, after an existence of four or five years, had been extinct some time before the creation of the American Public Health Association. For several years the new Association required a great deal of labor and self sacrifice on the part of those who had inaugurated it to keep it in existence. The growth of the Association and the work it has accomplished prove the correctness of the views of its founders. Its membership has been augmented from year to year, until it now constitutes the largest and strongest sanitary body in the world, and embraces in territorial extent the United States, the Dominion of Canada and the republic of Mexico. Under the impetus given by its work, State and local boards of health and sanitary associations have been organized, sanitary publications increased, and hygienic knowledge widely diffused.

The terms of its membership are sufficiently broad to include all who are interested in public health questions. Its transactions not only contain reports of patient laboratory investigation, but the practical conclusions of those actively engaged in sanitary work.

Preventive medicine is necessarily and entirely disinterested and of the highest type of benevolence; and the American Public Health Association should have the cordial support of all who are interested in the well being of humanity.

THE INSPECTION OF MERCHANTABLE WATERS.

The vast number of places in our country where mineral and table waters are sold has made it a matter of solicitude whether or not they are what their label represents. It is not only distressing to be doubtful about the quality of the bottled waters, but it amounts almost to panic when we reflect that what purports to be Brother HART'S APOLLINARIS may be a vile mixture, filtered from the Chicago River, or pumped from the nearest hydrant; and that even Wisconsin, Waukesha or Chippewa Spring water, to say nothing of the unnamed thousands, may also be either extremely stale, or altogether fraudulent in any market.

There is no question but advances in civilization will ultimately require protection of the people against fraud, but as yet we know of no municipal ordinance which requires the inspection of bottled waters. Not only is it an act of fraud to sell waters under a false label, but it is in effect criminal, when persons imagine they are receiving medicinal waters as prescribed by their physician.

There is a certain water in West Virginia of great value in gastritis. Now if any physician in any city knowing its virtues, should prescribe it, and the

patient obtain the product of the hydrant instead, no words could sufficiently characterize the fraud; and yet we are credibly informed that there exists in the city of Chicago, a factory where not only the labels, but the corks and bottles, may be procured in exact imitation of any known water. We doubt extremely whether Chicago is alone in this iniquity, and it is more than probable that a large percentage of the water sold in bottles is fraudulent.

The mere suspicion of fraud in the sale of these waters, is enough to cause many to turn to other beverages.

"If she be not fair to me,
What care I how fair she be."

If this be true of the bottled waters, what can we say of the waters delivered to customers by incorporated companies in bulk? The water *may* be good, but nobody can say so except the vendors themselves, for there is no qualified inspector.

The need for water inspection is therefore one of urgency, and we shall be pleased to record the date of passage of the first municipal ordinance for the prevention of fraud in the sale of potable and mineral waters.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The annual meeting of the Mississippi Valley Medical Association was held at Indianapolis on October 4, 5 and 6, under the presidency of DR. R. S. SUTTON of Pittsburgh.

The attendance was less than at some meetings previously held, but it is easily accounted for by the recent financial stringency and the Pan-American Medical Congress. The proximity of the World's Fair at Chicago, and to a less extent the St. Louis Exposition served to attract members in those directions.

As usual, the American Medical Association members constituted about four-fifths of those attending, and their share in the scientific work was proportionate.

The papers were excellent, and we print in other pages an abstract of them.

The discussions were well sustained, animated and interesting. They would have been more voluminous but for lack of time;—the great number on the program allowed but limited time for discussion.

The high standard of the papers read at this meeting is a source of gratification to the well wishers of the Association.

A MEDICAL EDITOR'S RESIGNATION.

DR. CYRUS EDSON has resigned from the editor's chair of the *Doctor of Hygiene*, of New York. At least he is reported as saying that his name will not appear again as responsible for its management. The journal was formerly known as the *Doctor*, but soon after its change of name and the entry of DR. EDSON, then the Sanitary Superintendent and later a Commissioner of the Health Department, the make-up of the paper became such as to attract attention. The names and portraits of the president and officers were published on the front cover, as if it were an official organ of the Board, and it purported to be "in the interests of American boards of health." Various schemes of a sanitary nature sought the columns of that paper, with the intention apparently of taking shelter under the roof of this bright project. A water-filter company at the head of which DR. EDSON'S name figured, was among these. The imputation, however, that the position of the latter as a health official was liable to misuse for private gain, led him to withdraw from the company. There have been a great many resignations of late years in relation to the New York Board, but very little repose. The politicians have their grip on it, and use it to the utmost of their power.

ORGANIZATION A PROFESSIONAL NECESSITY.

The *Medical News* of Philadelphia, which has been making many pointed appeals for a greater and stronger union, in a recent and able editorial on the attitude of the lay press to the medical profession says:

"A Philadelphia newspaper lately made itself the agent of some patent medicine cure-all, and distributed thousands of bottles over its counter.

"There remains, of course, the humiliating confession that the existence of the newspaper doctor and of the newspaper debauch in quackery is indirectly and in large part the fault of the profession itself, dependent upon the fact that we are a non-organized profession, and that what organization we have is not used in the practical righting of medical abuses. Thus, again and perpetually, recurs the truth that every medical scandal and every aspect of our powerlessness resolves itself into our sins of disorganization, and of non-interest in practical matters and in preventive medicine. Out of a hundred thousand physicians in America hardly a hundredth part are active members of the American Medical Association, and the section meetings of "congresses" of physicians could almost always be held in an ordinary private sitting-room of a workman's cottage—so slim is the attendance. And when we do meet we discuss the symptoms and treatment of individual cases of illness, leaving out of consideration the production of disease, the prevention of it, and the domination of legislation, the newspapers, and the lay-world by the quack and the pill-vendor.

"How can we bring any influence to bear upon the newspapers if we present the spectacle of a disunited and factional lot of scramblers and indifferentists? There are many of these newspapers who are simply ignorant and thoughtless as regards the disgrace of their advertising columns, and who could easily be shamed out of it if we were but united among ourselves, and would use our united strength for matters of practical reforms of medical abuse and preventive medicine. Organize, and use organization for the world's sake! is the command of professional honor and of benevolence."

HONORS TO PROF. POZZI.—The Chicago Gynecological Society, of which DR. E. J. DOERING is President, gave a dinner to PROF. S. POZZI, Professeur Aggrégé to the Faculty of Medicine and Surgeon to the Lourcine-Pascal Hospital of Paris, on Friday, October 6.

SOCIETY NEWS.

Mississippi Valley Medical Association.

Abstract of the Proceedings of the Nineteenth Annual Meeting held at Indianapolis, Ind., Oct. 4, 5 and 6, 1893.

FIRST DAY—GENERAL SESSION.

The Association met in Plymouth Church, and was called to order by the Chairman of the Committee of Arrangements, DR. GEORGE J. COOK of Indianapolis.

Divine blessing was invoked by the Rev. Frederick E. Dewhurst.

Governor MATTHEWS was introduced and delivered an

ADDRESS OF WELCOME.

The President, DR. R. STANSBURY SUTTON of Pittsburg, was introduced and delivered the President's Address. He selected for his subject,

FIBROID TUMORS OF THE UTERUS.

After giving a definition of these tumors the author dwelt upon the etiology, which he said is still a mystery. They are more frequent in the black than in the white race. In both races they are more frequent in the body than in the neck of the uterus, and more frequently situated in the posterior than in the anterior wall. After the menopause is established these tumors generally disappear, unless they have undergone cystic degeneration. Bearing on this point Dr. Sutton reported an anomalous case. The patient was 43 years of age, she had never menstruated in her life, had never shown any physiological evidence of ovulation, had been twice married, was then a widow and childless. She had for ten years a large fibro-myoma of the uterus, which thus far gave no evidence of atrophy.

With regard to the pathology, the tumor always has its origin in the substance of the uterine wall or sub-peritoneal connective tissue.

The symptoms accompanying the presence of these tumors in various localities and stages of growth are widely different. However, the class of indications are patent as found in the vast majority of cases, and may be tabulated as follows: 1, vague pain in the pelvic region; 2, pain referred to the front or back of the leg; 3, irritability of the bladder or rectum; 4, uterine tenesmus; 5, menorrhagia or metrorrhagia; 6, dysmenorrhea; 7, profuse leucorrhea; 8, serous discharge from the uterus.

The diagnosis of very small fibro-myomata, when many of the leading symptoms are absent, is considered extremely difficult. As far as the medical treatment is concerned, but little can be done for the relief of patients suffering from fibro-myomata, and nothing for those suffering from those tumors which have undergone cystic degeneration. Surgically, there are but two routes by which solid, uterine tumors can be removed, either through the vagina or by abdominal section. With the exception of small tumors with a well-defined pedicle, all sub-peritoneal fibro-myomata are reached only by section of the abdominal wall. Dr. Sutton in one case divided the posterior wall of the vagina and through this opening delivered the tumor.

SECTION ON GENERAL MEDICINE.

DR. O. EVERTS of College Hill, Ohio, Chairman.

FORENSIC MEDICINE.

This paper was read by DR. C. G. COMEGYS of Cincinnati. The author had come to the conclusion, from his experience, that there are but few lawyers sufficiently informed in medical science to conduct a case in the interests of truth and justice, especially the most important cases in medical jurisprudence. Every physician, as an expert witness, must have observed the embarrassment of lawyers in trying medical cases. They ask questions enough, but from their lack of medical experience they are incapable of thoroughly understanding the answers of a witness, so that the proper interpretation of them, bearing upon the history of a case at the bar, may be reached, and when endeavoring to give the court and jury clear views of the subject by additional questions, they often confuse the whole investigation. This disagreeable state of affairs is usually brought about by certain lawyers who have armed themselves by a superficial study of medical works for the occasion. Dr. Comegys believes that the high order of legal men will welcome well-trained men in medicine as coadjutors in the lofty work of establishing justice.

PROBLEMS OF PUBLIC INTEREST CONCERNING THE INSANE,

by DR. ORPHEUS EVERTS of College Hill, Ohio. The author said there are several problems of public interest involved in the present relations of society to the insane. Among the more important of these are questions of dependency and curability of the insane and the preventability of insanity. The author summarized his conclusions as follows:

1.—Intelligent provision for the insane implies provision for various classes, according to the capabilities of enjoyment and the exercise of variously impaired faculties.

2.—Public provision for whatever class of insane persons implies housing, clothing, food, sanitary and moral discipline, amusement and employment for such as are capable of being amused and employed, and medical treatment for the sick. The essential features of such provision are adaptability to the needs of each distinctive class.

3.—Great, expensive, architecturally imposing palaces, providing alike for all classes, however serviceable they may have been, esthetically considered, in times past, as they unquestionably were, are no longer necessary nor appropriate to the needs indicated. So long as the insane are comfortably housed, each class according to its condition, it is comparatively unimportant whether it be in large or small houses, cottages or palaces, connected or detached, in high or low buildings.

4.—It is important that the insane of all classes be well fed under careful supervision; but whether in small or large dining rooms, by groups or congregations, is of little consequence; that it should be a matter of convenience rather than of number.

5.—It is important that public institutions for the insane be well organized and administered.

6.—It is wise to retain in office capable men who have demonstrated their fitness by successful management of affairs, so long as their capabilities continue to be elastic.

CHOREA IN ITS RELATION TO RHEUMATISM.

This paper was contributed by DR. I. N. LOVE of St. Louis. The author said that recently the pathology of this disease has been cleared up to a very considerable degree, so that now it is a definite affection and one especially incident to childhood. DR. LOVE reported a case of chorea occurring in his practice with a marked history of rheumatism, it being one of ten cases observed and illustrative of this class. The cases did not occur successively. Between them other cases presented themselves *minus* the rheumatic history, but four of the number occurred in rapid succession with as pronounced rheumatic history. Of the entire ten, seven were girls. Among the exciting causes of the disease are irritation in the nostrils and adenoid growths in the vault of the pharynx. Inasmuch as Kirkes, Tuckwell, Hughlings Jackson and Bastian support the embolic theory of the disease, and in consideration of the fact that chorea is so frequently associated with endocarditis, we should be on the alert to interrogate the heart when called to a case of chorea. As matters now stand, we have numerous exciting causes resulting in chorea.

CHOREA; ITS PATHOLOGY AND TREATMENT.

This paper was contributed by DR. H. M. LASH of Indianapolis. So much uncertainty has existed regarding the pathology of chorea, that its treatment has been varied and widely different in its character and aim, amounting even to empiricism. Under all forms recovery has been recorded; but it is certainly interesting to note the variety of views which have been from time to time, and which are still held, in regard to this most peculiar disease. The author then gave the causes of chorea as laid down in the recent work on nervous diseases by Dr. Landon Carter Gray. He referred to the repeated experiments of Dr. H. C. Wood, who announced his conviction that the choreic movements had their origin in the spinal cord and were directly due to paralysis or depression of the inhibitory function of the cells of the spinal cord. Acting on the strength of this conviction, Dr. Wood sought for a remedy that would strengthen the proper function of these cells, and he found it in quinin.

Dr. Lash then reported a case of acute chorea in a boy 13 years of age. The choreic movements were constant, general and pronounced. It was agreed to try Dr. Wood's suggestion, and so the patient was put on full doses of quinin. Twenty grains a day, in four doses, were given him for three days, when he showed considerable improvement. The quinin was increased to 25 grains a day and given in that amount for three days more, when the patient again reported. There were no remaining symptoms of the chorea, and the quinin was gradually withdrawn. The patient has remained entirely free from the trouble ever since, and

without any future treatment of any kind. Another similar case was reported with a successful result.

DIPHTHERIA; ITS SPECIFIC DIAGNOSIS.

This was the title of a paper read by DR. J. C. CULBERTSON of Cincinnati. The author said that this disease is of peculiar interest because of its singularity in being more treacherous and insidious in its manifestations than any other affection that is met with by the practitioner of medicine. The uncertainty of diagnosis had caused some excellent practitioners to adopt the pernicious habit of diagnosticating and treating all cases of sore throat, whether simple or malignant, as if they were true diphtheria. True, the treatment designed for diphtheria may cure a tonsilitis, but inestimable harm may have been done in causing an unnecessary alarm on the part of the patient's family, and the disagreeable inconvenience that accompanies isolation of the patient and quarantining of the family, to be followed by the mockery of disinfection of non-infected apartments and perhaps destruction of clothing and furniture. On the other hand, a case of diphtheria, diagnosed as a simple tonsilitis, may be the cause of breaking up a school or producing an epidemic, with an indefinite amount of sickness and many deaths. A case was cited in point.

Dr. Culbertson then referred to the importance of utilizing the science of bacteriology, and mentioned the plan adopted by the New York City Board of Health of having undertaken to provide laboratory facilities for all practitioners of medicine in that city free of charge.

A TREATMENT GIVING A LOW DEATH RATE IN CASES OF DIPHTHERIA IN HOSPITAL AND PRIVATE PRACTICE.

DR. WILLIAM A. GALLOWAY of Xenia, Ohio, read this paper. The subject was treated from the standpoint of recent hospital practice, 234 cases with a death rate of 14 per cent. under favorable sanitary surroundings. The paper embraced reports from private practice of physicians who had given the treatment faithful trial during the past three years, who unhesitatingly commended its value and all were able to show a death rate below 10 per cent. The subject was divided into the *hygienic*, in which the most careful attention was paid to the isolation and surroundings of patients; the *constitutional* and *local topical* treatment, the latter being considered by the writer as secondary in importance. Under constitutional treatment, immediately the nature of the disease was suspected, the writer gave 1 grain of calomel for each year of the patient's age up to 18, repeating the dose in four to six hours and met the action of the mercurial with copious hot water injections. This treatment was persisted in until the full action of the calomel on the liver and kidneys was obtained, relieving these two important excretory organs of the paretic condition caused by the absorption of the toxalbumin product of the Klebs-Loeffler bacillus. Improvement in the patient's appearance was immediate and the mercurials acted freely. The quantity of foul smelling grass-green dejecta resulting is astounding. There is no fear from salivation, as under the most heroic use of mercurials no symptom of salivation has been observed by the writer or his friends. Internally corrosive sublimate was given up to 1-80 of a grain, with full doses of tincture of chlorid of iron and alcohol hourly at night and during the day. Local topical treatment consisted of peroxid of hydrogen, one-quarter solution, for cleansing the throat, which was commended, while as an escharotic 12 grains of salicylic acid to 1 drachm of alcohol were used twice a day by the physician only. It proved of great value in the writer's hands. This escharotic is very powerful and should be used carefully if needed.

THE STUDY OF A FATAL CASE OF ESSENTIAL TACHYCARDIA.

This paper was contributed by DR. JOHN C. SEXTON of Rushville, Indiana, in which he detailed the symptoms and clinical features of a case of essential tachycardia that died after thirty-five days illness. The attractive feature of the case was the response to manipulative efforts, electrical and other, by the Doctor, to produce stimulation of the pneumogastric nerve and thus to slow the heart. The paper then reviewed the ordinary symptoms of heart hurry as presented in the literature of the subject and some further remarks concerning the causation, symptomatology and treatment.

Papers were also read by Drs. R. E. Haughton of Midland, Texas; A Ravogli of Cincinnati, and others.

The address on general medicine was delivered by DR. JAMES F. HIBBERD of Richmond, Ind. His conclusions were:

1.—That there is a rapid progress being made in preventive medicine.

2.—That our present conception of the complicated organization of the human body is based on the theory that the Creator in the beginning endowed vitalized matter with a perpetual law of virtue of which man has been developed, step by step, from primitive protoplasm.

3.—That there is no longer dubiety in the proposition that the cell is the unit of vital activity, and that all living beings are a single cell or an organization of cells and cell products.

4.—That the influence of the mind on vital activities, normal and abnormal, is not recognized as it should be, and that there is a line of study that would, if properly pursued, dissolve the agnosticism that has in the past embarrassed a knowledge of the reciprocal relations of matter and mind.

SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY.

DR. ARTHUR W. JOHNSTONE of Cincinnati, Chairman.

The first paper in this section was read by DR. RUFUS B. HALL of Cincinnati, entitled,

OVARIOTOMY IN THE AGED.

The author confined his remarks to patients who were 70 or more years of age. He said it was generally conceded as true that any operation upon the old did not promise as good results as the same operation would upon the young or patients in middle life. Especially was this true in reference to all abdominal operations necessitating a hard strain upon the system from shock, or from traumatism to vital organs during the operation, as we not infrequently have in the removal of large ovarian tumors. Dr. Hall maintains that the death rate is not greater than that which usually follows the same delayed class of operations on women between 40 and 50 years of age. He had had but three ovariotomies upon women above 70 years of age. In each of the first two cases the friends of the patients hesitated to have the operation made on account of the advanced age of the patients. In each of these the operation was deferred until the patient was in extremis.

Dr. Hall then detailed three interesting cases of ovariotomy performed on patients, aged respectively 70, 70 years and six months, and 72 years. Judging from the low mortality of the reported cases and from the work of the best known operators, the author is constrained to believe that ovariotomy in old women, if the kidneys are healthy, is as safe as in middle life.

THE VALUE OF A CLOSE OBSERVATION OF OTHER MEN'S WORK.

This paper was read by DR. WILLIAM H. LINK of Petersburg, Ind. He said it is by the tireless energy of originality and the endless application of original methods to both the expected and the unexpected in surgery, that has thus far pushed our work and its underlying science toward perfection. By close and frequent observation, defects in technique and improper application of surgical measures may be noted and, having been recognized, may be avoided. There is no field in which object lesson teaching is so effective, so fruitful of valuable practical results as in gynecological surgery. The observer may not always know whether the operation he witnesses carries the patient on to recovery or the contrary; but, if a close observer, he is improving his own surgical judgment. He is studying, rejecting, or adopting methods and aphorisms as they impress his intelligence or his reason approves. By seeing work done under varying conditions and with different results we readily come to the conclusion that a private hospital is by no means necessary to successful work; that the pure air of a country or village home, or a clean room in a private residence in a city is as good a place for surgical work as the most painted and gilded hospital, and that no one need hesitate because his patient can not have the supposed advantages of some place specially set apart for the sick.

DR. L. H. DUNNING of Indianapolis, Ind., read a paper entitled

INTESTINAL OBSTRUCTION FOLLOWING ABDOMINAL SECTION.

Of the complications following abdominal section, few are more fatal than occlusion of the intestines. It may appear in a few hours after the section or not until several weeks have elapsed. In this paper the author dealt with only acute intestinal obstruction. The author is conscious of having met with but a single case in 130 abdominal sections, yet this case occurred two and a half weeks after what he had considered a very successful ovariotomy. The question of the administration of cathartics in cases of suspected or threatened occlusion of the intestines is one oftentimes most difficult to decide. Under such circumstances he is inclined to the belief that during the first week after sec-

tion cathartics are indicated, and he prefers to administer 1 grain doses of calomel every hour for a few times, then administer 2 drachm doses of epsom salts every two hours until an action is obtained, or it is demonstrated that a harmful effect is being produced. A distinct understanding of the pathological conditions possibly present must guide the operator in his search for the cause of the occlusion, and when found it should be dealt with in the shortest possible time consistent with the permanent cure of the patient.

THE PRESENT STATUS OF THE TREATMENT OF UTERINE FIBROIDS.

This paper was contributed by DR. XAVIER O. WERDER of Pittsburg, and in the absence of the author, was read by DR. THOMAS B. EASTMAN of Indianapolis. For the sake of convenience the author divided the treatment into the symptomatic and the radical, and confined himself to those views which seem to be generally accepted by the leading and unbiased authorities of the present day. The principal symptoms produced by uterine fibroids requiring our attention are hemorrhage and pain. Hemorrhage is one of the most constant and dangerous complications, and is due to diseased and hypertrophied condition of the uterine mucosa and hyperplasia of its blood vessels (Wyder), or according to the later researches of Semb, to a hypertrophy of the uterine muscles accompanying the growth of the myoma with a simultaneous hyperplasia of the blood vessels. The operations practiced for the radical cure of myomatous growths are vaginal enucleation, removal of the appendages, enucleation by laparotomy, and supra-pubic hysterectomy. The author then considered these operations at length.

THE ERECT POSTURE FOR GYNECOLOGICAL EXAMINATIONS.

This paper was contributed by DR. WILLIAM B. DEWEES of Salina, Kan., but was read by DR. JOHN C. SEXTON of Rushville, Ind.

Digital examination per vaginam with the patient in the erect posture affords one of the most positive means for diagnosis in gynecology. It is a well established fact that respiration, the various movements and attitudes of the body, as well as pathological conditions, change the conditions and environments of the viscera. Thus the importance of posturing the patient in making physical examinations in gynecic practice becomes evident, as most of the symptoms of diseases of the intra-pelvic organs are more marked and very many only manifested when the patient is standing; while certain conditions of descent, prolapse or displacement, may entirely disappear or change when the pressure or the superincumbent weight of the abdominal viscera is removed by the patient being placed in the dorsal, semiprone, genupectoral, or high pelvic positions, therefore the erect posture is of paramount importance as an aid in diagnosis in this field of labor. The author emphasized the advantage and necessity of digital examination in the erect posture, more particularly in examinations undertaken for a cure in women of 1, displacements of the uterus; 2, vesical and rectal disorders; 3, lack of perineal and vaginal support; 4, ovarian and tubal disorders; 5, abdominal and pelvic tumors; and 6, differentiation between abdominal tumors and pregnancy.

DR. H. O. PANTZER of Indianapolis, read a paper entitled,

TUBERCULOSIS OF THE PERITONEUM WITH REPORT OF CASES.

The author said that the prognosis and treatment of peritoneal tuberculosis have changed within the last decade. The accidental discovery of its curability by laparotomy has shifted its clinical relations. He then quoted the conclusions of Dr. J. Whitridge Williams, from the Johns Hopkins Hospital reports, 1892, on tuberculosis of the female generative organs. He reported a case of primary genital tuberculosis, giving rise to a tubercular peritonitis, and tubercular disease of the abdominal parietes. Case 2 was one of primary genital tuberculosis following childbed, saculated ascites resembling an ovarian tumor. Laparotomy was performed and the patient recovered. Case 3 was one of genital tuberculosis complicated with a suppurative infection and pelvic peritonitis. Laparotomy was done, followed by recovery of the patient. This disease, from being regarded as a fatal and most intractable affection belonging to the domain of internal medicine, since its accession to the realm of surgery has come to be regarded as quite submissive. A mistaken diagnosis had repeatedly led to the opening of the abdominal cavity. Instead of an ovarian tumor, an enlarged gall bladder, a hydronephrosis, or some other legitimate object of surgical interest being found, tubercular disease of the peritoneum in some of its multiple forms presented itself. The abdomen was closed without any attempt at treatment, or at most the ascitic fluid was evacuated. It was noted that these cases did better afterwards, and that some fully recovered. In 1884 Kœnig advocated laparotomy as a curative measure for peritoneal tuberculosis, and the operation has been done by other surgeons since.

TREATMENT OF DISEASES OF THE UTERINE APPENDAGES.

DR. WILLIAM H. HUMISTON of Cleveland, Ohio, read a paper on this subject, in which he said the frequency and importance of diseases of the appendages are recognized by all practitioners of medicine. The early recognition of the same is of unusual importance, as by instituting proper treatment at once we save a large percentage of them from a major operation and a prolonged convalescence. Simple inflammatory conditions of the tubes and ovaries, before extensive adhesions take place can be successfully treated by rest, boro-glycerid, and iodin tampons, long continued hot water douches, thorough curettement of the uterus, followed by a course of galvanism. He had cured a few cases where the ovaries were prolapsed and somewhat adhered, by adding massage to the above treatment. But, as a rule, if the case has been neglected until pelvic peritonitis has occurred with its tendency to adhesions and recurrence, we will save many years of suffering, if not life itself, by advising removal of the appendages after a sufficient trial has been given to conservative treatment.

Frequently in the puerperal state we have a pelvic peritonitis arise without affecting the tubes, the inflammation spreading directly through the uterus; there is an exudate formed which rest and proper treatment will absorb and leave the appendages strong and healthy, so that later pregnancy takes place and the patient goes on to full term. In these cases, if suppuration occur, laparotomy should be advised. In tubercular salpingitis the question of removal will depend wholly upon the amount of general systemic infection. The author believes that nearly all suppurative diseases of the tubes and ovaries are due to gonorrhea, his experience leading to this belief. The doctor closed with a few words on the value of electricity in the treatment of inflammations of the uterus and appendages. He values this very highly, and in the catarrhal forms of endometritis in young girls and primiparæ we can obtain a cure if sufficient time is given. He applies the positive pole intra-uterine, and the negative in the form of a broad electrode over the whole abdominal region, using a strength of from 20 to 50 milliamperes for five minutes every third day. It requires from fifteen to twenty applications to complete a cure.

XERODERMA PIGMENTOSUM.

DR. A. W. BRAYTON of Indianapolis, presented two cases of Kaposi's disease—xeroderma pigmentosum—occurring in the same family. The patients are girls, 2½ and 18 years old respectively. A brother died of the disease at 9 years of age. There are four brothers unaffected. All three were affected from the fifth month of infancy. Dr. Wm. S. Corlett of Cleveland, commented on the cases, of which but fifteen are known in the United States. The older girl is kept comfortable by scraping out the tumors upon the hands and face as they appear. A tumor the size of a hickory nut upon the eyelid Dr. Corlett advised to be removed by electrolysis. A lithograph and description of this case was published in the *Journal of Cutaneous and Venereal Diseases* for April, 1892. Dr. Brayton also presented a case of non-pigmented sarcoma of the face in a woman 28 years old. The lesions were on the right side of the face, and varied in size from one-eighth to an inch in diameter. The larger ones had been destroyed by electrolysis, but returned. The growths probably originated from an infantile nævus. The microscopic sections accompanying the case showed it to be small-celled sarcoma. The growths were painful, but not ulcerating, and there is so far no metastasis. Dr. A. Ravogli saw and commented upon this case.

Another case also examined by Dr. Wm. S. Corlett was of idiopathic pigmented sarcoma cutis of twenty-five years' standing in the person of a physician 75 years of age. The growth began below the external malleolus of the left foot. After ten years the whole left leg was involved, and five years later the right leg, the left arm and external margin of right ear. The tumors vary from the size of a wheat grain to that of a silver dollar and are little elevated above the skin. They undergo involution after four or five years, leaving well marked cicatrices. This case was also commented on by Dr. Corlett. It belongs to the extremely rare growth (multiple pigmented sarcoma cutis of Kaposi) described by Dr. J. A. Fordyce in the *Journal of Cutaneous*

and Venereal Diseases, January, 1891. Dr. W. A. Hardaway reports a case which underwent complete involution after sixteen years, leaving merely an atrophic condition of the skin. In the present case the tumors, at first soft, become fibrous and disappear, leaving scars. Upon the legs nearly the entire area is involved. The health is good. The microscope confirms the diagnosis. Taylor reports a similar case of this rare affection.

A case of lupus mutilons (Hutchinson) in a colored girl 8 years old, existing from infancy, was also shown. The entire left arm was scarred by the disease; one finger was diseased to the bone; the thumb was stunted by the disease. Dr. Corlett remarked of this case that if he had seen it in Cuba he should have regarded it on first sight as a case of leprosy, so closely did the lesions simulate that disease.

SECTION ON GENERAL SURGERY.

DR. W. N. WISHARD of Indianapolis, Chairman.

The first paper in this Section was read by DR. H. W. LOEB of St. Louis, entitled,

SOME ILLUSTRATIVE CASES OF NASAL HEADACHE.

The author at the last meeting of the Missouri State Medical Association presented a paper upon nasal headaches in which the following list of such conditions was suggested as possessing an etiological significance in this regard: acute inflammations of the nasal mucous membrane, chronic rhinitis, rhinoliths and foreign bodies, septal deformities, deflections, spurs, ridges, diseases of the accessory sinuses, chronic atrophic rhinitis and anything which causes the middle turbinated tissues to press against the septum. In headaches of the following characters it was stated that a nasal origin might be expected: 1, frontal headaches; 2, hemicrania, starting about the orbit; 3, long continued headaches; 4, headaches of which successive attacks are identical or similar; 5, headaches increased or originated by acute rhinitis; 6, headaches associated with evident disease of the nose or accessory cavities. In the present paper the author presented cases which illustrated the characteristics, both symptomatic and causal, as stated in the before mentioned contribution.

DR. B. MERRILL RICKETTS of Cincinnati, reported several interesting surgical cases, and exhibited photographs of the same.

DR. J. T. BERGHOFF of St. Joseph, Mo., read a paper entitled,

TREATMENT OF FRACTURES OF THE LEG.

In treating fractures of the leg, the author said the latter should never rest on the bedding but should be suspended. He cares not how well the surgeon may coaptate the broken bone and protect the same with bandages, or plaster-of-paris, if the limb rest on the bedding, by each movement of the body of the patient the fracture is bound to move. The process of repair is exactly the same in soft tissues and bones. Why do we have union by first intention? Because we coaptate the wounds exactly, and keep them so. The wound heals sometimes in three days, at the farthest a week. But to put the broken limb in an immovable condition and keep it so without great suffering to the patient can not be done under the old system. Dr. Berghoff then described an apparatus or splint, the outgrowth of patient study for twenty years, but more particularly the last ten years. The apparatus is also adapted for treating disease of the hip, knee and ankle joints, as the extension can be adjusted as the case requires, the joints being kept immobile

INCURABILITY OF ADVANCED AND EXTREME CASES OF TALIPES EQUINO-VARUS BY THE MEANS AND METHODS IN VOGUE AT THE PRESENT TIME; SUGGESTION OF A WAY TO REMOVE THE DEFORMITY WITHOUT DISTURBING THE USEFULNESS OF THE EXTREMITY.

The author of this paper, DR. LOUIS BAUER of St. Louis, presented a plaster cast of a talipes equino-varus in which the weight of the body rested upon the dislocated astragalus and calcaneum. He produced also the skeleton of a leg and foot of a person who died while in this condition. He showed that there was complete dislocation of the astragalus; that the knee joint surfaces had formed between that bone and the calcaneum, whereby the weight of the body rested entirely upon the end of the astragalus and calcaneum; that the scaphoid and other bones of the foot bore little if any part in sustaining the weight of the body. It has been found impossible in extreme cases of talipes to restore the foot to its natural position by tenotomy or by *brisement forcé*. In one case, after six years' trial, the doctor had proposed an amputation similar to Chopart whereby all bones anterior to the astragalus were removed. The operation would leave a linear scar anterior to the astragalus in its new position and would be out of the way, and in such direction the artificial foot could be easily adjusted. He had not had an opportunity of trying this method, but felt sure that this amputation was a proper method in those cases where, after long continued efforts, reduction could not be effected. He also reported a case where there was extreme lateral curvature of the spine from distortion of the pelvis in a young musician. He became satisfied that the deformity was due to the unnatural position, and therefore directed a long splint applied reaching from the axilla to the foot and the pelvis was gradually pressed toward the splint by an appropriate bandage. After a period of time, not stated by the speaker, the patient recovered.

In the discussion which followed, DR. MARSEE of Indianapolis, took strong ground against tenotomy, tarsectomy, or amputation in these cases, holding the position that by *brisement forcé* with a wrench or club-foot stretcher he could bring the most refractory case into normal position.

DR. WM. E. WIRT of Cleveland, believes in resection of some of the bones after the method of Phelps in cases where tenotomy or linear osteotomy had proved unavailable.

DR. JOHN B. HAMILTON of Chicago, agreed with Dr. Marsee in recommending the use of a club-foot stretcher or wrench. He would not hesitate to apply a force sufficient to comminute the dislocated astragalus if it were necessary to put the foot in position. He had seen no bad results following osteoclasis. The difference between osteoclasis, osteotomy or tarsectomy is precisely that between a simple and open fracture. In regard to abrasions of the skin, he had not met with any, and strongly preferred osteoclasis.

DR. ALLAN DEVILBISS of Toledo, Ohio, read a paper entitled,

NEW DEVICES FOR CUTTING BONE.

Dr. DeVilbiss exhibited a surgical motor with various forms of saws and drills, which he developed through a series of practical tests. He had used them first upon the dead, afterwards upon the living. These instruments were adapted for operation upon the skull, maxillary bone, ribs, nasal bones, etc.

DR. WILLIAM E. WIRT of Cleveland, Ohio, read a paper on

THE TREATMENT OF OLD CASES OF HIP DISEASE.

He said there is no doubt that if convalescent cases of hid disease were carefully and persistently treated during a long period of complete recovery, whatever deformity had existed up to this time and that which accompanies this period, could be entirely overcome without operation. When shall a case of hip disease be considered to have progressed far enough to permit the removal of the extension splint and the substitution of a convalescent brace? The solution of this problem was a matter of judgment. It is better to allow the extension splint to be worn unnecessarily long than for the substitution to be made too soon.

The deformities requiring correction are flexion and adduction. Dr. Wirt had been surprised in several instances of old cases of hip disease with considerable deformity where, after the application of continuous extension in bed for a few weeks the deformity would be considerably reduced. After a trial of extension in bed with a failure to reduce deformity there remains as a means of correction: 1, brisement forcé, with or without myotomy, tenotomy, faciotomy, etc.; 2, osteoclasis; 3, osteotomy. These operations were then considered by the author under their respective heads. Osteoclasis and osteotomy are reserved for those cases in which there exists bony union or a fibrous ankylosis of a very firm character. The author reported sixteen cases following Grant's operation.

A CASE OF SENILE GANGRENE TREATED BY AMPUTATION.

This paper was contributed by DR. G. W. H. KEMPER of Muncie, Ind. The patient was a farmer aged 73 years. After detailing the particulars of the case the author drew the following deductions:

1.—While the gangrene is confined to one or two toes, it is best to defer amputation. If the disease extends to the dorsum of the foot amputation is proper.

2.—Amputation below the knee is rarely successful, owing to lack of proper blood supply and tendency to recurrence of gangrene in the stump.

3.—Amputation through the thigh will save a large per cent. of the cases, and especially so when the subjects are free from a general disease. Maunsell-Moullin observes that usually the thigh is small and wasted in the lower

third; the artery is sound in Hunter's canal; the flaps are well supplied with blood, and old people as a rule resent operation very slightly. Their tissues are not prone to inflammation.

4.—When amputation has been performed below the knee, and gangrene appears in the stump, unless the patient is exhausted, it will be proper to perform a secondary amputation above the knee.

DR. I. N. QUIMBY of Jersey City, N. J., read a paper entitled,

A NEW METHOD OF OPERATING AT THE ANKLE JOINT FOR INJURIES OF THE FOOT.

The method consists of making a curvilinear incision across the dorsum of the foot, commencing anterior to and a little below the internal malleolus, and terminating at a corresponding point a little below the external malleolus, and then uniting the two extremities of the dorsal section by an incision across the sole of the foot, forming an anterior and posterior flap, similar to the operation performed by Pirogoff of Russia. After forming a short anterior flap and turning it back, he then dissects out the astragalus from its attachments, being careful to keep close to the bone; then forming a linear posterior flap from the sole of the foot he makes a careful dissection, exposing the anterior half of the calcaneum. This being done, and the soft parts being well retracted by an assistant, the saw is applied so as to remove nearly the anterior half of the bone by an incision from above downward and from behind forward. The sharp edges of the remaining portion of the bone are then rounded off and the sawed surface is applied directly to the articular surface of the tibia between the malleoli, without removing any part of the cartilaginous surface. After stitching up the flap in the usual way a strap of adhesive plaster is applied three or four inches in width extending from the upper portion of the gastrocnemius muscle to a corresponding point on the anterior surface of the leg passing directly over the os calcis, so as to keep closely and firmly in apposition to the articular surface of the tibia, which is kept there until the union of bones has taken place.

THE BACTERIA OF THE SURFACE.

DR. FRANK J. THORNBURY of Buffalo, read a paper under this title in which the latest researches were set forth, rational mechanical means of disinfection summarized, and the non-utility of antiseptics proclaimed. The varieties of organisms which the cutaneous and mucous surfaces present in great abundance comprise molds, yeast fungi, bacilli, cocci, color and odor-producing bacteria. The hairy regions, as the axillary space, and the interdigital folds are the places of predilection for the bacteria upon the cutis. Myriads of microbes are present in the oral cavity, the intestinal tract, the genital tract of the female, the male urethra, and in the conjunctival secretion and cerumen of the ear. Among the masses are germs which are pathogenic, as the Fehleisen streptococcus of erysipelas. The cleansing of the surface constitutes one of the most important duties of asepsis. This pertains especially to the physician's own hands. The disinfection can not be accomplished by the use of antiseptics, so-called, which do not even reach the bacteria imbedded in the substrata of fat and dirt. The disinfection must be mechanical, dissolving away the glandular secretions, dead epidermal cells, vegetable and albuminous substances. For the latter purpose soap, hot water and brush are used, aided by alcohol and ether, and rubbing with sterile towels. Baths are an important adjunct to asepsis, and one or a number should be administered previous to operation.

THE ETIOLOGY, DIAGNOSIS AND TREATMENT OF ULCERATION OF THE RECTUM.

This subject was dealt with in a general way by DR. JOSEPH M. MATTHEWS of Louisville. As a matter of convenience he classified these ulcers under four heads: benign, malignant, tubercular and specific. He said to this division there might be a valid objection based upon correct pathological grounds. For instance, in this classification he makes the term, malignant, synonymous with cancer, and yet the tubercular ulcer may in truth be malignant without assuming the characteristics of cancer. Again, some writers would have us believe that a tuberculous patient is closely akin at least to a syphilitic one or vice versa. Benign ulceration is not so frequently found in the rectum as is supposed. Whenever the author meets with a well-defined ulceration existing in the rectum, he immediately begins to suspect some special diathesis. It is only when the facility of defecation is interfered with that any danger is to be feared. The lumen of this portion of the gut is not narrowed by any ordinary causes. For these and other causes Dr. Matthews has long since been forced to believe that such ascribed causes as pregnancy, dysentery, etc., were not great factors in producing ulceration of the rectum. The speaker then dwelt upon malignant ulceration of the rectum, saying that is a favorite seat for cancer. Many times the disease is overlooked entirely or diagnosticated as some other affection. It has occurred to him several times to have had patients referred to him for some trivial rectal trouble and found cancer instead. The more he practices the more he is convinced that syphilis is responsible for fully one-half of the cases of severe ulceration of the rectum. The treatment must in every individual case depend upon the known character of it. We can not treat a benign ulcer as we would a malignant one, nor a tubercular ulcer as a specific one, nor the last named as the first named. Benign growths of the rectum require local applications. Malignant, extirpation; tuberculous, the curette; syphilitic, anti-syphilitic and local medication, extirpation, colotomy.

INGUINAL COLOTOMY.

DR. LEON STRAUS of St. Louis, read a paper with this title, in which he entered a plea for more frequent and earlier colotomy in painful malignant diseases of the rectum. Dr. Straus stated his reasons for making colotomy as follows: 1, it is the greatest modern surgical relief measure, inasmuch as it completely does away with the function of the rectum, thereby relieving the intense pain caused by defecation. Pain is an inevitable result in advanced malignant disease of the rectum. There are few exceptional cases which only prove the rule; 2, the lease of life is extended. There are many instances where it has been considerably extended. So great authorities as Cripps, Allingham, and Eiselsberg claim to have extended the lease for weeks or months. Are not these most cogent reasons for making a colotomy? 3, the risk of the operation has been minimized. Allingham has made sixty-eight colotomies with only two deaths, and they were total obstruction cases. Cripps forty-eight with one death; this was a total obstruction case. Edwards has made sixteen, with one death. The patient was very septic at the time of operation. Reeves has made sixty-five operations without a death. Goodsall has made twenty-two without a death. Statistics show a death rate of less than 2 per cent. By making early colotomy the author believes that the death rate might be reduced to less than 1 per cent.

DR. WM. THOS. CORLETT of Cleveland, Ohio, read a paper on

THE CLINICAL VARIETIES AND TREATMENT OF PEMPHIGUS.

His paper was illustrated by the description of unusual cases. The writer divided pemphigus into two main varieties, *pemphigus vulgaris* and *pemphigus foliaceus*, under which all cases, although differing in certain features, may be grouped. Under acute pemphigus he gave the history of an epidemic of pemphigus in the newborn. The main features were that all the cases occurred in the practice of one midwife; the disease began at the end of the first week, as an erythema on the lower part of the face, or upper part of the chest. This was followed by the formation of blebs with flabby walls which soon ruptured leaving extensive raw surfaces. About three-fourths of the body was involved and terminated fatally about the tenth day. The writer regarded it as due to contagion.

Under chronic pemphigus, which is the most common form, Dr. Corlett drew attention to the frequency with which the mucous membranes were involved and cited a case in which the disease first appeared in the bronchial tubes simulating capillary bronchitis. Later it appeared in the mouth and throat, which from its resemblance to diphtheria has been called pemphigus diphtheriticus. Finally the disease attacked the eyeballs. On the skin it differed in no way from the usual form. The case ended in recovery, but with the complete loss of sight.

In the treatment, he thought arsenic had been over-estimated. Iron, strychnin and arsenic benefited only as general tonics, which were especially indicated in this disease. Locally, the continuous tepid bath was recommended, but unfortunately it is often impracticable, when recourse must be had in simpler measures. As soothing applications, the glycerol of tannin, one part to three or four of distilled hamamelis, or water; or the glycerol of lead, one ounce to a pint of water, he thought the best at our command. The latter was preferred when but small areas were denuded of epidermis. When itching is present a 3 per cent. solution

of resorcin was recommended. Finally when desquamation sets in, some emollient, such as the zinc ointment or carbolized vaselin will afford the best relief.

KRASKE'S OPERATION WITH REPORT OF CASES.

By DR. H. O. WALKER of Detroit, Mich. The author of this paper said that a man or woman who had cancer of the rectum was of few days, and the method of relief could be done in three ways—either by proctotomy and scooping away of the growth, by excision of the cancer, or by colotomy, all of which were temporary, as the author had never seen a case of true cancer that ever got well. When the malignant growth was high up, say two or three inches above the rectum, the best operation to make would be by Kraske's method; that is, by making an incision down through the second sacral vertebra to the anus to the left of the coccyx, and rapidly stripping off the muscular and ligamentous attachments to the coccyx and cutting them away with the bone forceps and as much of the sacrum as is necessary to expose the growth. Then we have a full view for enucleating the growth and excising it. It is well known that it is a difficult matter to approxmate the ends by suture method, and an idea was forced upon Dr. Walker from his knowledge of the Murphy button that with a large button, say two inches in diameter, which he exhibited to the Association, he could approximate the cut ends of the rectum, and by this means prevent the infiltration of fecal matter to approximate the ends by suture method. and an idea was forced upon Dr. Walker from his knowledge of the Murphy button that with a large button, say two inches in diameter, which he exhibited to the Association, he could approximate the cut ends of the rectum, and by this means prevent the infiltration of fecal matter, which by the other method was an impossibility. In this connection, Dr. Walker said he had made the first end-to-end approximation by the Murphy button in a case of fecal fistula on the 8th of December, and the patient on whom he had operated made a good recovery and within two weeks was as well as ever, with no evidence of any contraction of the intestine.

SOME HERESIES REGARDING PROSTATIC PATHOLOGY.

This paper was contributed by DR. G. FRANK LYDSTON of Chicago. The author said among the many ills which were marked noli me tangere until recent years, and which modern surgery has done much to relieve, prostatic hypertrophy occupies a very prominent position. The surgical resources at present at our command were then briefly stated. The author is becoming daily more and more firmly convinced that the ideal operation is a combined suprapubic and perineal section performed at an early period. He believes that in many cases this early operation will not only forestall circumscribed prostatic obstructions, median or lateral, but will prove directly curative by restoring the normal function of micturition. Supra-pubic cystotomy is undoubtedly the best method of draining the bladder, as far as a single operation is concerned, and in many instances it is all sufficient. When combined, however, with perineal section, prostatic dilatation and prolonged drainage by a large tube, we often do away with certain conditions which exist in the way of contracted lumen of the prostatic urethra and hyper-excitability of this portion of the urinary tract, which supra-pubic cystotomy alone might not accomplish.

Dr. Lydston believes that the main factors in the etiology of prostatic disease are laid down in many cases, if not the majority, before middle life.

The surgical address before the general session was given by DR. HENRY O. MARCY of Boston, the subject having been selected by a request, as that of

INGUINAL HERNIA, ITS ANATOMY AND BETTER METHODS FOR CURE.

Dr. Marcy illustrated his lecture by a series of slides reproducing the magnificent illustrated work of the old masters—Kamper, Cooper, Scarpi, Bougerey, and others. By general consensus of opinion the profession is indebted to Dr. Marcy as an innovator in this field of labor. He had established the value of the buried animal suture and published his results quite five years before that of Weith of Germany, to whom in Europe the credit is generally attributed. The essential principles of his operation for hernia have become universally accepted. The result of the work of a large number of the modern operators give from 70 to 90 per cent. of permanent cures. In resumé, Dr. Marcy claims that the peritoneal sac as a rule should be resected after suturing quite to its very base; that the deeper structures which go to make up the posterior wall of the inguinal canal should be reinforced and restored to their original normal condition; that the external wound should be closed without drainage and the skin wound sealed with iodoform collodion. In his large experience involving several hundred cases, he states that where the intestine has not been involved from strangulation or other cause, not one of his patients has appeared to approach the danger line, and that of the entire number which he has been able to trace, more than 90 per cent. have remained after one year permanently cured.

Papers were also read before this section by DRS. WILLIAM N. WISHARD of Indianapolis; J. MCLEAN MOULDER of Kokomo, Ind.; WILLIAM T. BELFIELD of Chicago, and others.

Committee on Nominations organized by election of Dudley S. Reynolds of Louisville, chairman and I. N. Love, secretary.

The following officers were elected for the ensuing year:

President—Dr. X. C. Scott of Cleveland, Ohio.
First Vice-President—Dr. Leon Straus of St. Louis.
Second Vice-President—Dr. G. Frank Lydston of Chicago.
Secretary—Dr. Frederick C. Woodburn of Indianapolis.
Treasurer—Dr. George J. Cook of Indianapolis.
Chairman Com. of Arrangements—Dr. Thos. E. Holland of Hot Springs.

Hot Springs, Ark., was selected as the next place of meeting. Time of meeting, first Tuesday in November.

After drafting and adopting resolutions of thanks, the Association adjourned.

Tri-State Medical Association.—The Tri-State Medical Association of Arkansas, Tennessee and Mississippi will convene in annual session in Memphis, Tenn., on Nov. 22 and 23, 1893.

Members of the Association and all regular physicians in good standing are cordially invited to attend.

Those intending to contribute papers or report cases of importance occurring in their practice, should notify the Secretary at once, giving title of paper, in order that their names may appear on the program. A. L. ELCAN, M.D.

Secretary, Memphis, Tenn.

West Tennessee Medical and Surgical Association will meet at Brownsville, Tenn., Thursday, October 26, at 2:30 P.M. A session will be held also at night and one on Friday morning, the 27th. This arrangement is made to save time, and to avoid night travel. Dr. I. A. McSwain is the Secretary.

Mississippi Valley Association Notes.—The *Indiana Medical Journal* will in its next issue print the proceedings in full. Among the medical editors present, we noticed Dr. R. B. Granger of the *New York Medical Journal*; Dr. Brayton of the *Indiana Medical Journal;* Dr. Culbertson of the *Lancet and Clinic;* Dr. I. N. Love of the *Medical Mirror* of St. Louis; Dr. G. F. Lydston of the *Western Medical Reporter* and Dr. John B. Hamilton of this JOURNAL. Dr. James F. Hibberd the President-elect of the American Medical Association gave the annual address in medicine. The reception was held at the Denison House, and Governor Matthews honored the occasion by his presence. The Chairman of the Committee of Arrangements, Dr. Cook, and the secretary of the Association, Dr. Woodburn, have reason to be gratified at the success of the meeting.

Tri-State Medical Association of Alabama, Georgia and Tennesses to be held at Chattanooga, Tenn., Oct. 17.

LIST OF PAPERS.

"Membranous Croup with Report of Cases Treated with Tracheotomy." R. M. Harbin, Calhoun, Ga.

"Treatment of Stone in the Biliary Duct." W. E. B. Davis, Birmingham, Ala.

"Cholecystotomy." Paul F. Eve, Nashville, Tenn.

"Symptoms and Pathology of Fractures about the Elbow." J. B. Murfree, Murfreesboro, Tenn.

"Treatment and Prognosis of Fractures about the Elbow." Willis F. Westmoreland, Atlanta, Ga.

"Action of the Galvanic Current on the Uterine Tissue." H. Berlin, Chattanooga, Tenn.

"Pathology of the Sequelæ of Purulent Inflammation of the Middle Ear." T. Hilliard Wood, Nashville, Tenn.

"Treatment of the Sequelæ of Purulent Inflammation of the Middle Ear." G. C. Savage, Nashville, Tenn.
"The Significance of Albumen in the Urine in Pregnancy." E T. Camp, Gadsden, Ala.
"Serous or Watery Discharges during Gestation; their Source and Significance." J. R. Rathmell, Chattanooga, Tenn.
"Tuberculosis on the Cumberland Mountains." L. P. Barbour, Tracy City, Tenn.
"Symptoms and Treatment of Gastritis." G. T. Prince, Whiteside, Tenn.
"Treatment of Varicocele." J. W. Handly, Nashville, Tenn.
"Treatment of Pyrexia." J. A. Witherspoon, Columbia, Tenn.
"Recent Observations of Croupous Pneumonia with Special Reference to Prophylaxis and Treatment." R. M. Cunningham, Birmingham, Ala.
"Naso-Pharyngeal Adenoids." E. L. Jones, Chattanooga, Tenn.
"Etiology, Pathology and Preventation of Ophthlamia Neonatorum." L. B. Graddy, Nashville, Tenn.
"Treatment of Ophthalmia Neonatorum." B. F. Travis, Chattanooga, Tenn.
"Treatment of Puerperal Mastitis." J. W. Russey, Chattanooga, Tenn.
"Disease of Female Bladder." J. C. LeGrand, Anniston, Ala.
"Treatment of Psoriasis at Hot Springs, Ark., with Report of Cases." J. Cabell Minor, Hot Springs, Ark.
"Treatment of the Omentum in Hernia Operations." G. A. Baxter, Chattanooga, Tenn.
"Report of Psychical Science Congress, Chicago, August, 1893." John E. Purdon, Cullman, Ala.
"The Elastic Dressing Applied to Incomplete Anchylosis of the Knee." C. W. Barrier, Columbus, Ga.
"Medical Ethics." J. B. Cowan, Tullahoma, Tenn.
"Tubercular Peritonitis." T. J. Crofford, Memphis, Tenn.
"Movable Kidney." J. B. S. Holmes, Rome, Ga.
"Pathology and Treatment of Goitre." W. C. Townes, Chattanooga, Tenn.
President's Address: "Responsibilities of the Abdominal Surgeon." Richard Douglas, Nashville, Tenn.

ASSOCIATION NEWS.

The Journal of the American Medical Association.—"Since the meeting of the Medical Association at Milwaukee, we have watched this journal with unusual interest, because its new editor was not only so well known to the profession at large, but also because he came from our own city; and, therefore, any success he might achieve would reflect, so we argued, credit upon the city from which he came. That Dr. Hamilton has fulfilled the highest expectations of his friends goes without saying. The profession should take great pride in making this journal its representative both at home and abroad. We are equal in every way to our friends across the water, and there is no reason why, in the matter of a representative journal, we should not certainly equal, if not excel them. That the JOURNAL will do this under the editorial management of Dr. Hamilton we firmly believe But he must be supported, of course, by the whole profession. This can not be done in any better way, than by sending the annual subscription of $5.00 to the JOURNAL, at 68 Wabash Avenue, Chicago."—*Food*, October, 1893.

NECROLOGY.

Dr. Edward Warren-Bey, whose death has recently been announced, has for nearly twenty years been one of the leading physicians of Paris, and of world-wide reputation. He was born in Tyrrell County, North Carolina, Jan. 22, 1828 His parents were natives of Virginia. His father, Dr. Wm. C. Warren, was a man of intelligence and good professional attainments. When the subject of this sketch was but 4 years of age his father removed with his family to Edenton, N. C. When of a proper age the boy was sent to the Fairfax Institute, near Alexandria, where he remained for two years, and was then placed at the University of Virginia, where he won honors and received diplomas, and by selection delivered the valedictory before the Jefferson Society. In 1851 he graduated from the Jefferson Medical College in Philadelphia.

It is stated by one of his biographers that while pursuing his studies in Philadelphia he conceived the idea of administering morphin under the skin for the relief of pain by puncture with Anel's syringe. He had written his thesis for graduation on this method of administering medicines; but mentioning it to one of the faculty, who looked upon it as chimerical and dangerous, he was dissuaded from presenting the paper and wrote one on another subject. He had, however, become so thoroughly convinced of the practicability of the method that he soon after put it to a practical test, and was some four years in advance of the public announcements of this very useful method of administering remedies.

To farther prosecute his medical studies he spent most of the years 1854 and 1855 in attending the hospitals and clinics of Paris, and during this time formed strong and lasting friendships with many of the leading medical men of France. He was a ready and a graceful writer, and contributed from the French capital a number of very acceptable articles to the *American Journal of Medical Sciences* and to other American medical publications.

On returning to the United States he settled to practice in Edenton, N. C. He was thoroughly well equipped to practice medicine and speedily acquired a leading position among the medical men of the region. In 1856 he was selected to deliver the annual address before the State Medical Society, which was well received and brought him prominently before the active workers in the professional ranks. The same year he obtained the "Fish Fund Prize" for an essay on the "Effects of Pregnancy on the developing of Tuberculosis." This paper has passed into the permanent literature of medicine. In 1857 he was elected editor of the *North Carolina Medical Journal*, at the time the official organ of the State Medical Society. The Gynecological Society of Boston the same year elected him a member. While in Paris he became a member of the "American Medical Society of Paris," and this organization sent him as their delegate to the American Medical Association, but he was unable to attend or register. But he was a delegate from the State Medical Society of North Carolina to the meeting of the American Medical Association at Louisville, Ky., in 1859. He also attended meetings from Baltimore, Md., where he was then practicing, in 1860, 1866, 1868, 1870 and 1872.

Dr. Warren was on Nov. 16, 1857, united in marriage to Miss Elizabeth Cotton Johnston of Edenton, a most estimable lady whose ancestors were extensively connected with many distinguished families in the old North State and in Virginia.

Dr. Warren's reputation for learning and scientific acquirements had become so widely known in 1860, that he was elected professor of materia medica and therapeutics in the old and prosperous University of Maryland. This led to his removal to the city of Baltimore. The same year he was elected the first vice-president of the convention for the revision of the United States Pharmacopeia. In the University of Maryland he at once took high rank as an able teacher and an attractive lecturer.

On the breaking out of the war between the States he threw his fortunes with his native State and his friends in the South. He served in the field, in hospitals and on medical boards. He was chief surgeon in the North Carolina

Navy and medical director of the Cape Fear section. He was also for a time the chief medical inspector of the Department of Northern Virginia. He was twice promoted for his efficiency and courage on the field of battle. This trait of efficiency in the doctor was so notable as to attract attention, and the fact coming to the attention of the Assembly of North Carolina, an Act was passed by them raising his rank from that of colonel to that of brigadier general for "efficient services rendered to sick and wounded."

Notwithstanding the engrossing official and professional duties of Dr. Warren during the war, he wrote a work to meet the needs of surgeons in the field, entitled, "Surgery for Field and Hospital." In this publication, which was well received and speedily passed through two editions, the doctor made some valuable original suggestions. In 1865, Dr. Warren resumed his residence in Baltimore, expecting at the same time to resume his professional duties in the University of Maryland. But the changed conditions of the country and the status of the Southern States, the policy of the general government and local interests combined to close the doors of that institution against him.

He was not only capable but ambitious and full of energy, and it was mainly at his suggestion and through his efforts that the old Washington University Medical School was revived and rapidly rose to have a commanding position and an able faculty and good patronage. In this faculty Dr. Warren filled most acceptably the chair of surgery.

When the Act of Assembly of Maryland passed requiring an examination and registration of the physicians of the State, Dr. Warren was appointed upon the board to carry the law into effect.

In 1868 he was elected one of the vice-presidents of the Medical and Chirurgical Faculty of Maryland, and the same year founded the *Medical Bulletin*, which under his management acquired a large circulation.

The celebrated Wharton trial, which took place in 1872, brought Dr. Warren to the forefront among specialists in criminal trials. He was confronted by able physiologists, general practitioners and chemists, and their theories and tests shown to be inconclusive. The case attracted wide attention not only in America but in Europe. Dr. Warren ably sustained himself before the court, and his testimony so completely broke down the chemical evidence relied upon by the prosecution as to compel the court to enter a nolle prosequi in the case. For some time after the doctor was made a target for critics, not only in the medical profession but by the bar and the public press. But it is simple justice to say that no review of his evidence and theory of the case was ever able to demonstrate that he was in error in his views.

At the meeting of the American Medical Association in 1872 he was chosen Chairman of the Section of Surgery for the following year. He did not, however, attend that meeting or send a report.

In 1873 Dr. Warren suffered a severe domestic affliction in the death of his devoted wife. His health suffered seriously and to change the scene he consented to accept a medical position in the Army of the Khedive of Egypt. His service although brief in that country was nevertheless sufficiently conspicuous to place him at the head of the surgical staff It was his good fortune to relieve Kissim Pasha the Minister of War from a strangulated hernia.

This operation was undertaken when the war minister's life was despaired of by his own surgeons, and when it was almost impossible for Dr. Warren to get any of them to assist him in the operation from a religious dread of being blamed with causing his death. But the operation was a success and the result placed the courageous Dr. Warren in the front rank of surgeons in the Khedive's army.

His splendid success where death was imminent and expected, induced the Khedive to confer upon Dr. Warren the Decoration of the Medjidie and the title of Bey.

Dr. Warren unfortunately contracted a severe form of ophthalmia common in the East and it proving obstinate, he obtained a furlough for six months to visit Paris for treatment. Here he was promptly told that one eye was practically lost and that a longer residence in Egypt would result in the loss of the other.

He had no alternative but to resign, which he did. The Khedive was most kind, and in accepting his resignation spoke of his valuable services in the Egyptian army and wished him long years of usefulness.

It was then while still under treatment that he was advised to become a candidate for practice in Paris. After many conferences with friends and the earnest advice of Dr. Charcot, Breed and other eminent practitioners, he concluded to take up his permanent residence in Paris.

Dr. Warren's success in the metropolis of France was exceptionally rapid and gratifying. Both practice and honors came flowing in upon him. From Spain he received the decoration of a "Knight of the order of Isabella the Catholic," for earnest services rendered to Spanish subjects, and from his old Maryland a degree of "Master of Surgery."

Dr. Warren both as a boy and through his life proved his indomitable energy and power of work. He secured a large share of confidence with his professional brethren. And yet like all men of force and original ideas, antagonisms were evolved by the friction. That he was a man of ability and culture his life and works attest. His house in Paris was frequented by Americans and travelers from other countries, and his attentions and hospitalities for years generously bestowed upon numerous friends visiting Paris.

J. M. T.

Dr. Thomas Lincoln Richards of the Vanderbilt Clinic of New York city, died Sunday, October 1, at the age of twenty-nine years. His malady, so seldom fatal among physicians, was smallpox, contracted while in the performance of his duty at the clinic. A patient was under treatment for varicella by one of the staff, who exhibited the case freely as a typical case of that disease. Two physicians were taken ill about the same date; one of them recovered and one, Dr. Richards, succumbed to what at first appeared to be a mild form of variolous disease. He was an alumnus of the College of Physicians and Surgeons, New York, and an ex-interne of the Bellevue Hospital, during 1892. His former home was at Fort Atkinson, Wis. It is an extremely infrequent event, so far as can be ascertained from the periodical literature of medicine, that a physician falls a victim to variola. In this case of Dr. Richards, the attack did not at first seem serious, neither did he seem to suffer in consequence of his removal from his home in the city to the Contagious Disease Hospital on North Brother Island, but he grew worse from day to day after his removal. Dr. Richards was unmarried.

Dr. T. J. Sprague of Joliet, Ill., lately appointed pension examiner, died October 3.

BOOK NOTICES.

System of Diseases of the Ear, Nose, and Throat. Edited by CHARLES H. BURNETT, A.M., M.D. Emeritus Professor of Otology in the Philadelphia Policlinic, etc., Philadelphia, Pa. Vol. II. Illustrated. Philadelphia: J. B. Lippincott Company. 1893.

This is an important work of 858 pages, containing six papers on diseases of the nose, and seventeen on throat affections. Of the twenty-three writers New York is represented

by seven, Pennsylvania four, Michigan two, and several other States by one each. One foreign country, England, is also represented.

The book is well illustrated with many plates and figures. Some of these are exceptionally finely executed, the plates being introduced in separate sheets.

W. C. Jarvis has a 28-page article on surgical procedures in deformities and neoplastic growths in the nose. It is prepared with great care and thoroughness, and the fairness and generosity of the author are conspicuous on every page in the numerous references to other authors, and the credits duly accorded each for originality and priority in discoveries and methods.

J. A. White gives the most elaborate elucidation of the subject of neuroses of the nose we have ever seen. He devotes fifty-eight pages to this topic. His exposition of the nasal reflexes is clearly abreast of the times and is full of proof of extensive research. The importance of recognizing and properly treating nasal reflex cough is shown in the misery and expense endured by those sufferers who are annually dragged from their homes and family ties to spend their winters in the south or the mountains of the West, only to find at last that a little judicious treatment of a nasal affection banishes the specter of phthisis.

Dr. White has obtained the best results in treating paroxysms of asthma, by spraying the nose with a 4 per cent. solution of cocain followed by a second spray of camphor-menthol, 6 per cent. Cerebral sedatives and vaso-tonics are added.

A. W. MacCoy has a beautifully illustrated paper of twenty pages on the anatomy and physiology of the pharynx and larynx.

Max Thorner has written twenty-four pages of great practical value on the various forms of acute pharyngitis. He opens with an interesting discussion of the mooted question of taking cold. He pays doubtful respects to the old theory, and discreetly steps out of the arena while he introduces the several disputants to fight it out among themselves. His remarks on treatment embrace the most valuable of the new remedies.

E. F. Ingals has twenty pages on chronic pharyngitis, in which no space is wasted in historic disquisition or references to other writers. He records merely the results of his own observations and rich experience, in smooth, flowing English.

W. C. Glasgow, in treating of croup, throws discredit on the time-honored remedy, calomel, for preventing the fibrinous exudate. Otherwise his treatment is orthodox. He indorses Dr. Wetmore's iron treatment.

J. L. Smith, in an exhaustive paper of forty-seven pages on diphtheria, maintains that it is primarily a local disease of microbic origin. His warnings against that undeservedly popular remedy, potassium chlorate, are telling and timely. He uses H_2O_2 in 10 per cent. solution for spraying the throat. A good dioxid of hydrogen is neither toxic or irritating, and gives the best results in full strength. No opinion is expressed in the efficacy of sulpho-calcin or methyl-violet. Corrosive sublimate is recommended internally and locally, but pilocarpin is condemned.

J. Solis Cohen brings the volume to a close with an admirable treatment of a most difficult subject—tuberculosis and syphilis of the larynx. In tuberculosis he places reliance on creosote internally, and lactic acid topically, and is opposed to the galvano-cautery. Twenty per cent. solutions of menthol in olive oil are injected into the larynx.

A Treatise on Ophthalmology for the General Practitioner. Second edition, revised and enlarged, with 140 illustrations, by Adolph Alt, M.D. 8vo. cl. pp. 330. St. Louis: J. H. Chambers & Co. 1893.

That the book was acceptable to those for whom it was intended is evident from the fact that it has now passed to its second edition. It is divided into twenty-eight chapters. The first gives the anatomy of the eye and its appendages; the second the method of examination. Chapter six being on "Minor Manipulations in the Treatment of Eye Diseases," is dislocated by being placed between chapter five on diseases of the orbit, and chapter seven on diseases of the orbit. The remarks on asepsis and antisepsis are excellent so far as care of the instruments are concerned, but a little more detailed direction of the precautions on the part of the practitioner, would have added to the value of the book. While there are operations illustrated and described that the general practitioner will rarely, if ever, perform, there is so much of value that we unhesitatingly commend the work to those for whose instruction it is intended.

State Medical Association of Texas.—Transactions for 1893. This volume includes the report of the transactions of the twenty-fifth annual meeting, which was held at Galveston in May, 1893. There are several notable papers in the transactions, and no pains have been spared apparently to render the book typographically the equal of other State transactions. A glance at the papers shows them to be complete, and at the same time not so "long drawn out" as to be tedious. The book has been carefully edited by the competent secretary, Dr. H. A. West of Galveston, Texas.

The American Association of Physicians and Surgeons.—Transactions for 1893. The ambitious title of this Association would lead us to expect that its transactions would show superior work, and a glance at the volume proves that the expectations are well founded. It includes papers by Drs. Beverly Robinson, Andrew H. Smith, Gilman Thompson, Tyson, Whittaker, Wood, Theobald Smith, Osler, Councilman, Allen Starr and others. The articles are illustrated by carefully drawn diagrams and well colored lithographs. As the papers have been generally printed elsewhere, either in abstract form or otherwise, special reference to them need not be made here.

Vermont State Medical Association.—Transactions for 1892. These transactions are included in a compact, neat volume of 175 pages, comprising the address of the president, the papers read at the meeting, and the minutes of the sessions. The book is well printed and shows care on part of the members of the publication committee. D. C. Hawley, M. D. of Burlington is secretary.

New Medical College.—The Wisconsin College of Physicians and Surgeons was opened in Milwaukee Sept. 26, with forty matriculates. The Presbyterian Hospital of Milwaukee adjoins the college buildings.

DOMESTIC CORRESPONDENCE.

The Name is Barker.

To the Editor:—In your editorial of October 7, entitled "The Place of Ergot in Obstetrics," you speak of a paper on this subject published in your issue of September 23 by Bohn. I think there is a mistake on this point, and judge it is my paper you refer to—"The Routine Administration of Ergot after Labor." Please make correction and oblige,

Yours truly,

T. Ridgway Barker.

427 So. 16th St., Philadelphia, Pa.

MISCELLANY.

Meeting of the State Board of Health of Michigan.—The following members were present at the meeting of the State Board of Health at the capital, Sept. 29-30, 1893: President Wells, Secretary Baker, Drs. Granger and Milner, and Prof. Fall. A very important resolution offered by Dr. Baker was unanimously adopted, placing consumption on the list

of "dangerous communicable diseases" required by law to be reported by physicians and householders. This means that henceforth this "great white plague" which causes far more deaths in Michigan than any other disease, is to be restricted in its ravages. This important move by the Board calls for the most earnest coöperation of health officers, physicians and the people generally. The resolution is as follows:

Resolved, That hereafter, consumption (and other diseases due to the *bacillus tuberculosis*) shall be included in the official list of "diseases dangerous to the public health" referred to in sections 1675 and 1676, Howell's Statutes, requiring notice by householders and physicians to the local health officer, as soon as such a disease is recognized.

The reporting of other dangerous diseases to the State Board has enabled it to place pamphlets of instructions just where they would do most good, and at the right time. Many years of experience show that restrictive measures recommended by the State Board of Health, relative to dangerous diseases, have been the direct means of great reductions in the death rates of dangerous diseases; in some instances the death rate is only about half what it was before the State Board of Health undertook restrictive measures. If consumption were reported, it could be dealt with in the same manner and restricted, and many cases of consumption avoided every year. It is a disease easily restricted, and the State Board of Health distributes a pamphlet telling just how to do it. If the physicians and citizens of Michigan will do with consumption as they have done in the past with other dangerous diseases, and coöperate with the health officers, much suffering and loss of life can be prevented.

In connection with the subject of reprinting the leaflet on the restriction of dangerous contagious diseases, in several different languages for distribution to neighbors of persons sick with a dangerous disease, Drs. Granger and Milner, the recently appointed members of the Board, had for years watched with interest the good work that these instructive pamphlets had been doing in the restriction and prevention of the several diseases. The Board directed the secretary to reprint this leaflet in several different languages. Dr. Granger said that many of our recently arrived foreigners did not believe that some of these diseases were dangerous, and that this leaflet was just what was wanted to educate this class of people, because diphtheria and other diseases were spread among them and by them to other classes of people.

The Board amended its rules for the inspection of immigrants at the Michigan border by adding to Rule 1, "and no immigrant shall come into this State or travel within the State, until inspected under these rules, and until authorized to do so by an inspector appointed or accredited by the Michigan State Board of Health."

Rule 5 was amended so as to hold immigrants until their baggage has been disinfected.

An additional rule was adopted as follows:

Rule 7.—Dangerous communicable diseases being now present in every country from which immigrants are coming into Michigan, no immigrant and no traveler or other person believed by the State Board of Health or by its authorized inspector to have been exposed to and liable to convey cholera, diphtheria or other dangerous communicable disease, shall pass through Michigan, or from one township, city or village to another within the State, without permission from the State Board of Health or its authorized inspector.

The following resolution, offered by Dr. Granger, was unanimously adopted:

Resolved, That it is the will of this Board that the President and Secretary continue to take such action as may be necessary to enforce the rules of this Board, and to enforce quarantine at the Michigan border and within the State against diseases dangerous to the public health, and to compel any railroad company operating within the State to obey the State laws and the rules and regulations of the State Board of Health made under the law.

Gelsemium in Rheumatism and Neuralgia.—In an article with the above title by Dr. A. Atkinson (*Charlotte Medical Journal*, July, 1893) the author says: "Often the trouble in administering the stronger fluid extracts and tinctures lies in the fact that the alcohol will evaporate and the extractive material will gum up and fall to the bottom and the sides of the bottle, and though you may administer a properly assayed article, you will now and then get too much of the active principle and trouble will follow; then, too, people keep medicines too long and they become uncertain and irregular in their action. It is safe in administering strong drugs when we can readily procure the alkaloid safely and properly adjusted, to prescribe the article put up by some reliable manufacturer, seeing that it has not been kept too long, and such active drugs are accurately and beautifully put on the market in a soluble form, and even though we have a granule which presents all the appearance of freshness and complete solubility, a good plan is to put it in water a few minutes before administering it, or to stick a hole in it and let the patient swallow it in a half softened state. There is no question but that the gelsemium will afford relief in many cases of neuralgia, but it must be pushed far enough to secure its physiological effects, just short of injury, if we expect to obtain full relief. In facial neuralgia Massini has found that 20 minims every half hour, for three doses almost invariably cures. This we would call getting its full effects—1 dram of the tincture in one hour and a half."

Dr. Thomas Hoover of the Ohio State Board of Health, has proposed a "pure water" plan for the consideration of that body, which is just now giving considerable attention to the question of supplying Ohio cities with healthful water. He proposes to have the State take charge of the water supply and furnish all important cities and towns by a system of canals fed by Lake Erie.

He will not make diplomas for the next three months.—Dr. Walter May Rew, whose bogus medical college was exposed last July, was sentenced October 10 to three months imprisonment in the penitentiary.

He will be Missed.—Dr. A. K. Bond has resigned the editorial chair of the *Maryland Medical Journal*.

THE PUBLIC SERVICE.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from September 30, 1893, to October 6, 1893.

Capt. WILLIAM D. CROSBY, Asst. Surgeon, is granted leave of absence for three months. By direction of the Secretary of War.

Majors ALFRED A. WOODHULL and ALFRED C. GIRARD, Surgeons, are detailed as delegates to represent the Medical Department of the Army at the annual meeting of the American Public Health Association, to be held in Chicago, Ill., from the 9th to the 14th of October, 1893.

LETTERS RECEIVED.

(A) Antikamina Chemical Co., St. Louis, Mo.; Adams, A. S., Rochester, Minn.; Anderson, O. C. M., Andover, Ill.; Ayers, D., Syracuse, N. Y.; (B) Bacon, C. G., Fulton, N. Y.; Battle & Co., St. Louis, Mo.; Bernd H. & Co., St. Louis, Mo.; Brayton, A. W., Indianapolis; Brown, M. R., Chicago, Ill.; (C) Cook, G. F., Oxford, Ohio; Cutter, E., New York City; Chancellor, E., St. Louis; Christian, E. T., Wyandotte, Mich.; (D) Dodd's Newspaper Advertising Agency, Boston, Mass.; Drevet Mfg. Co., New York City; DuBase, Robt. M., Sewanee, Tenn.; Dudley, E. C., Chicago, Ill.; Dunglison, R. J., Philadelphia, Pa.; (F) Farnham, A. B., Milwaukee, Wis.; Fairchild Bros. & Foster, New York City; (G) Gihon, A. H., Washington, D. C.; Gibson, Maris, Wilkesbarre, Pa.; Griffith, L. W., Bristol, England; (H) Horwitz, Orville, Philadelphia, Pa.; Hopkins, T. S., Thomasville, Ga.; Hamburg American Packet Co., New York City; Herrick, J. B., Chicago, Ill.; Hay, Thomas, Philadelphia, Pa.; Holmes, Bayard, Chicago; (K) Kramer, S. P., Cincinnati, Ohio; (L) La Garde, L. A., U. S. A.; Lundgren, C. E., Jamestown, N. Y.; Lea Bros., Philadelphia, Pa.; Leffingwell, E. D., Watkins, N. Y.; Lydston, Jas. A., Chicago, Ill.; (M) Mercer, A. C., Syracuse, N. Y.; Martin, A. A. & Son, Brookline, Boston, Mass.; Morton, T. J., Philadelphia, Pa.; Mariani & Co., New York City; Mulford, H. K. Company, Philadelphia, Pa.; Marshall Printing Co., Marshalltown, Iowa; Moyer, H. N., Chicago, Ill., 2; (N) Niles, S. R., Newspaper Adv. Agency, Boston, Mass.; (P) Purvis, C. B., Washington, D. C.; Parke, Davis & Co., Detroit, Mich.; Park, Roswell, Buffalo, N. Y.; Powell, R. H., Benson, W. Va.; (R) Risley, S. D., Philadelphia, Pa.; Rowell, Geo. P. & Co., New York City; (S) Slocum, H. A., Philadelphia, Pa.; Summary, The Editor, Elmira, N. Y.; Stowell, C. H., New York City; Scheiffelin, W. H. & Co, New York City, 2; Stearns, Fred & Co., Detroit, Mich.; Schaeffer, E. M., Georgetown, D. C.; Sharp & Dohme, New York City; Stephenson & Foster Co., Pittsburg, Pa.; Slay Bros., New York City; Somers, G. B., San Francisco, Cal.; Steiger, E. & Co., New York City; (T) The Tilden Co., New Lebanon, N. Y.; Tuley, H. E., Louisville, Ky.; (U) Upjohn, E. F., West Randolph, Vt.; (V) Voldeng, M. N., Independence, Iowa; Vernemann, R. T., Cannelton, Ind.; Vetter, J. C. & Co., New York City; (W) Witthous, E. A., New York City; Webb; J. A., Monon, Ind.; Webb, M. S., "Florida on Wheels," no address, Widman, J. F., McGregor, Iowa; Wilkinson, A. D., Denison, Iowa.